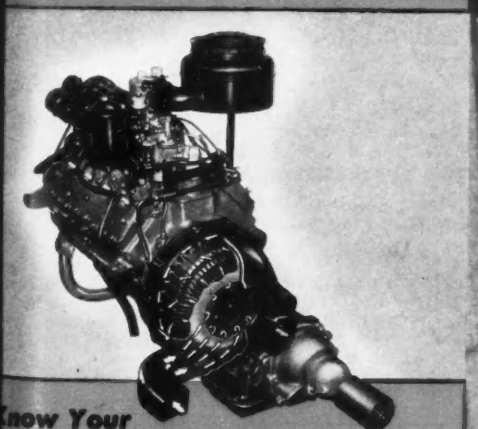
MOTOR TREND

OCTOBER
1950
25 CENTS

The Magazine for a Motoring World

WAR'S IMPACT on DETROIT!

Your Editor Takes You on a
1951 KAISER ROAD TEST



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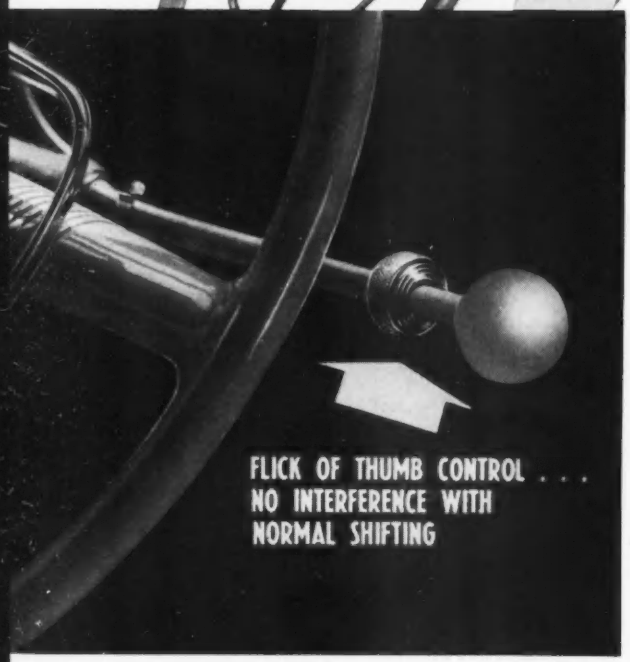

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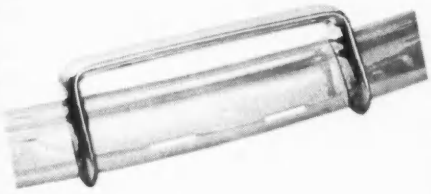

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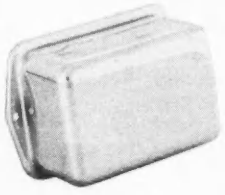

Sparkling rustproof chrome. Fits any stock Ford regulator. Complete with gasket and rivets. Very popular, especially at this low price..... **$1.29**

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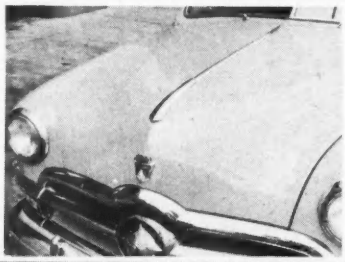

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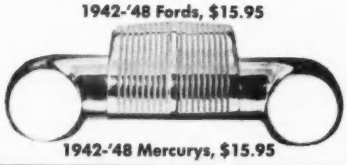

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Letters...

FROM OUR READERS

Letters published in this department are the opinions of the writers and are not to be construed as those of the editors. Address correspondence to: Letters From Our Readers, MOTOR TREND; 1015 So. La Cienega Boulevard, Los Angeles 35, California.

THE DAVIS STORY

Gentlemen:

In your article on the Davis Car (Aug. '50), you stated that two military vehicles with a jeep type body were built by Davis. One of them is owned by the Davis dealer in Macon, Georgia . . . he seems to find it a very satisfactory truck.

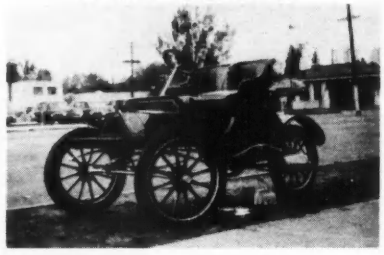
Marshall Mann
Macon, Georgia

Gentlemen:

. . . The article on the Davis by Eugene A. Jaderquist was timely and most interesting. Three cheers for Eugene. . . .

William W. Scott
Daly City, Calif.

WHAT IS IT DEPARTMENT



Gentlemen:

. . . Can you or any of your many readers identify the car in the enclosed photo?

William A. Rutherford
Denver, Colorado

—Sharpen up your wits, readers. What make is this three-wheeler?—EDITOR

"YOUR FUTURE CAR"

Gentlemen:

Although I appreciate the abilities of Col. de Sakhnoffsky, I believe there are a few basic faults in the design of his car of the future . . . the placing of the headlights on the edge of the bumper . . . the design did not carry out the basic curves of the body in part of the roof . . . the design of the handle used to close the doors on the inside . . .

Wade Vaughn
Seattle, Wash.

Gentlemen:

. . . I like this design but for the little things: sunken tire (unhandy), the seats seem to be [too] low . . .

Dean Hellings
Devon, Montana

Gentlemen:

I think the body lines . . . were very snappy and different. The trunk ideas are very novel; however, the front end seems overworked to me . . . if a curved bumper is used in the front, why not use the same type . . . in the rear? Lastly, why not have a split windshield? It seems as if they are more economical.

James Auston
Trenton, New Jersey

Gentlemen:

Those louvers of the 20's on the lower part of the [Sakhnoffsky] car don't look very futuristic to me . . . This car could have been properly termed the "future" car if the article were published in 1936, but today it is a composite of automobiles . . .

(Continued on page six)

YOUR EDITOR SAYS . . .

ON A RECENT trip to central California, your editor could not help but notice the lack of courtesy on the part of many drivers. What has happened to our road respect—are we so selfish in our own interests that we now look out only for ourselves?

We don't advocate anything as drastic as a return to the days when the gentleman virtually doffed his hat to the women in other cars on the highway; but, is there anything wrong in allowing the person who *should have* the right of way *to have* the right of way? We can't be in so much of a hurry to get to our destination that we have to barge unconcernedly across intersections, pass blindly on curves, and otherwise jeopardize our own safety, the safety of our passengers and other drivers.

By way of proving our point, we would like to inaugurate a new feature in MOTOR TREND. This feature will be called "That Taught Me to Drive." It can be contributed to by any one of you. Don't worry about your literary ability. We will be interested in any contributions telling about some predicament in which you found yourself, how you escaped and how it changed your driving habits. Incidentally, we will be glad to pay for published articles.

WHAT HAS HAPPENED to the credit that used to be given to the pit mechanic? About the only praise you hear about them now is a pat on the back by the winning driver and the hollow-sounding phrase, "I don't deserve the credit; give it to my mechanic." We think the mechanic deserves much more acclaim than he gets. We know you agree and would like to prove it by your reaction.

IT DOESN'T NECESSARILY take a big outfit to see the merit of an accessory item and then introduce it to the public. This has been proven time and again in the automotive industry and was again recently proven when a small company decided to stock a new grille trim that larger companies refused to handle. Since then the accessory has caught on rapidly. This is part of what the management of "MOTORAMA" intends to show to the public—the contributions made to present day motorized equipment by racing and sporting groups (large *or* small) in the past 50 years.

THIS MONTH we are inaugurating a new feature which will consist of tests of new items introduced to the automotive market. The first of these is the Specialty Man's Overdrive Selector, which was used on a test 1950 Ford. We believe that information such as this is a vital service to our readers. If we're right, we'll continue by testing other devices as they are introduced. See page 23.

MOTOR TREND

The Magazine for a Motoring World

OCTOBER 1950 Published Monthly VOL. 2 • NO. 10

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PUBLISHERS • R. E. PETERSEN, ROBERT R. LINDSAY
EDITOR • WALTER A. WORON
ART DIRECTOR • ALBERT H. ISAACS, JR.
TECHNICAL EDITOR • DON FRANCISCO
ADVERTISING DIRECTOR • FLOYD J. WHEELER
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ADVERTISING PRODUCTION • JACK PRESTON
STAFF PHOTOGRAPHERS • THOMAS J. MEDLEY, E. RICKMAN
CIRCULATION MANAGER • GORDON BEHN
EDITORIAL ASSISTANT • GRIFFITH BORGESON
STAFF WRITERS • H. WIEAND BOWMAN, G. THATCHER DARWIN
EUGENE A. JADERQUIST, HARRY CUSHING

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NOVEMBER 16 to 19, 1950

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THE BEAUTIFULLY decorated Shrine Convention Hall in Los Angeles is the locale of the First Annual "MOTORAMA," which will be held November 16 to 19, inclusive.

Motorized equipment, which has never been on public display before in Southern California, will be featured on the exposition floor. Included in this vast array of beautiful and unique show pieces will be many record-holding automobiles, motorcycles and boats.

In addition to the regular exposition displays and a complete roster of commercial booths, there will be numerous colorful exhibits by automobile, motorcycle and boat clubs and associations in both the amateur and professional fields.

Outstanding personalities from the racing and sports world, whose names are closely associated with the championship equipment on display, will be present every day of the show to appear on the entertainment programs.

The development of the automobile from the earliest days up to the present time, including a look into the future, will be depicted as the show theme.

Anyone seeking additional information on "MOTORAMA" is asked to write or call Motorama, Inc., 1015 South La Cienega, Los Angeles 35, California.

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Letters from Our Readers

(Continued from page four)

You don't have to go far to find the functional car that America has a crying need for. Just take a look at the Austin A-70. Remove the hood ornament and you have a better looking car than you have depicted . . .

H. Chapman
Los Angeles, Calif.

—It's good to get a diversion of opinion like the above. It only proves again what we've said many times before—the American motoring public is extremely conscious of automotive design development.—EDITOR

WHO'S GOT THE MODEL?

Gentlemen:

It would interest me to know who the model is pictured on the back cover of MOTOR TREND, July 1950. She is pictured with the advertisement of the Runyan Tonneau Cover. If she is sent out to demonstrate them I may be persuaded to buy one.

R. L. Z.
Seward, Nebraska

—Dear Bashful: Didn't you notice her on the front cover, too? Her name is Jean Dean and she will soon appear in a forthcoming Monogram picture called "Hot Rod."—EDITOR

CAR LISTS

Gentlemen:

I have purchased your magazine for the last few months mainly for the purpose of selecting a car . . . I am now in the market for a Custom Car . . . I was hoping that you would be able to help me find a good car.

Clayton Cook
N. Hollywood, Calif.

Gentlemen:

Have you ever had any requests for want ad or for sale space to be made available to those wishing to use your magazine as a medium for selling something in a used car (foreign make preferably) and/or swapping same?

There are probably many of those interested in seeing what is available in their vicinity in an MG, Riley, etc. that the dealers don't have so we prospective purchasers can know what they are getting and from whom. I personally think such a section would be a mutually enjoyable addition to your magazine.

S. Weisser
Peoria, Illinois

—We have had similar requests to start a car listing service, but not a sufficient number of them to warrant adding this feature. However, if we receive additional requests, we shall start such a list.—EDITOR

CORD DESIGN

Gentlemen:

Reference is made to the article entitled "Prototype of the Future" . . . wherein is stated that, to date, no one has claimed the entire credit for the design of the Cord 810.

Enclosed herewith is a photostatic copy of a page from the United States Patent Office Official Gazette, which shows that on December 3, 1935, there was issued to Gordon Beuhrig U.S. Design Patent No. 97,697, which patent shows clearly the configuration of the Cord 810, 812.

Incidentally, the writer is very much in the market for an 812 Westchester Sedan or an 812 convertible.

David D. Beach
Teterboro, New Jersey

OUR ERROR

Gentlemen:

. . . Do you always misplace the decimal point on your accelerometer error? Indicating 32 at an actual 30 is not .066, but 6.6 per cent . . .

Irvin M. Hoff
Tacoma, Washington

—Well, not always.—EDITOR

War's Impact on DETROIT!

by Harry Cushing

ALBERT H. ISAACS

NOTE: Because of the present world situation, it is difficult to conceive of any developments in the automotive industry that are more important to the average motorist than the effect the Korean conflict has on one of the nation's largest industries. That is why this article, prepared by our able Detroit representative, Harry Cushing, and which would normally appear as "Spotlight on Detroit," is presented as this issue's feature article. What Mr. Cushing has to say is of importance to all of us.—Editor.

DETROIT, MICHIGAN: Cars are being made here on a day-to-day basis. With the nation committed to fight Communism throughout the world, no one knows whether military production orders will completely halt civilian vehicle making.

The automobile industry is set for such assignments, however. Top executives of General Motors, Ford, Chrysler and other firms have officially notified the Government that their respective companies stand ready to carry out any jobs requested.

Currently, military orders in the industry total nearly $300,000,000, and more are expected within the near future. Probably as much as $1 billion will be spent for automotive equipment once Congress makes the necessary appropriations. Here are some typical examples of contracts now in force:

Dodge: A $25 million contract for cargo, troop transport, ammunition-carrying trucks, ambulances and maintenance trucks.

Willys-Overland: Contracts totalling $43 million for Jeeps and parts.

Studebaker: Producing 4,000 trucks with a value of $23,950,000.

Reo: Building 3,900 trucks valued at $24 million.

General Motors: Has a contract to build light sedans for the Army.

Cadillac: Has completed negotiations to build a sensational new 28-ton light tank. The vehicle will be made in Cleveland, Ohio, and will not utilize plant space now devoted to passenger car production.

Even though war contracts such as these have not directly hurt passenger car output as yet, production in Detroit *is* slowing down, due largely to the Korean conflict.

Material Shortages

The pinch of material shortages is being felt with increasing severity daily. Right now, steel is critically short with a reported "grey market" fast coming into existence.

Some reputable sources within the industry predict that within three months many of the important materials used in passenger car making will be available to the industry *only* through an allocations plan administered by the Federal Government. It's going to take just about that long for the full effect of the stepped-up national war production program to be felt here.

As more tanks, guns, airplanes, trucks and other weapons are placed into production, non-ferrous metals essential to both car manufacturing and war work will become critically scarce. Such supplies as copper, zinc, lead, tin, nickel and rubber will be hard-to-get for civilian production.

So, even though the Government does not ask the industry to shut down assembly lines, automobile production *will be* curtailed by the end of the year, reliable sources say.

Car Deliveries

So serious has the rush for new cars been in Detroit since the Korean war broke out, that most dealers in this area no longer take new orders.

A survey by the Detroit Auto Dealers Association reveals that three-fourths of the dealers in the motor city have stopped accepting new customers. Those on the long

order lists now can expect to wait as much as six months for delivery.

It is much the same throughout the entire country. And, unfortunately, some dealers are taking advantage of this "false shortage" by demanding that their customers accept many unwanted accessories. However, the person who wants a new car can still get it, although he may have to pay a higher price, either through the reduced trade-in value of his car, or through the addition of these extras.

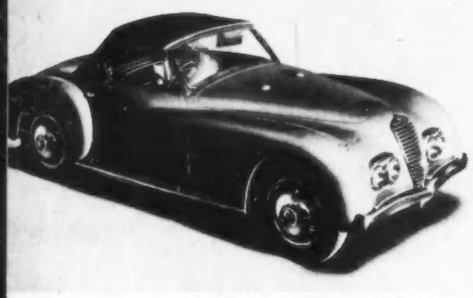
Parts and Tires

The scare is also being felt by parts and tire dealers, many whom report phenomenal sales. Despite the fact that the tire industry has repeatedly stated that they can produce all the tires that the civilian and military markets can use, car owners are buying tires for their own cars and one or two sets besides.

1951 Lines

In spite of the fact that passenger car output may go down, it's "new model" time in Detroit, and from now until well after the first of the year comes the parade of introductions.

According to sources close to the company, Ford is expected to unveil its new models by mid-October. Because of the popularity of the current line there are rumors that the new ones will be little changed—merely "face-lifted" versions. On the other hand,



PININ FARINA, internationally known Italian designer, is now consultant to Nash Motors. Car shown is Farina-designed, on an Alfa-Romeo

Lincoln and Mercury are expected to boast major style advancements.

Other 1951 lines which will be introduced this fall are Studebaker, rumored as featuring one model with a V-8 high compression engine; Nash's Ambassador and Statesman lines; Hudson; one of General Motors cars, with the other four making their appearance after the first of the year; and at least one of the Chrysler lines; the others arriving in 1951.

Packard got the jump on all its competitors by introducing 1951 cars in August, all three series radically redesigned.

The new lines are lower, longer and roomier with no increase in exterior width. Two straight eight engines, instead of three, are available, and Packard now has the highest compression ratio of any car in the industry in its largest engine.

In the 200 series, Packard features a 288 cu. in. engine developing 135 bhp with a 7:1 compression ratio and standard transmission. With automatic shift, horsepower goes up to 138 with 7.5:1 compression ratio.

The 300 and 400 series are powered by a

WILLYS-OVERLAND plant with Station Wagons and Army Jeeps moving down the line side-by-side

327 cu. in engine developing 150 bhp at 7:1 compression ratio with standard transmission. Equipped with Ultramatic shift, horsepower steps up to 155 with a 7.8:1 compression ratio.

Ultramatic Drive is optional in the first two series, but standard equipment on the 400. Packard estimates that 90 per cent of all its 1951 cars will be equipped with it.

Outside, the car is 62 inches from road-to-roof, and is 77 inches wide. Rear seat hip room has been increased from 50 to 62 inches, and the front seat is two inches wider.

The car's new styling has lowered the hood five inches. To accomplish this it was necessary to reposition and lower the water pump, hydraulic vibration damper and fanbelt proportionately.

Light Cars

Providing military production does not interfere, an entirely new light car, built by a company in the process of organization, will be introduced to the public next year.

Called the Cortez, the new car is slated to be built in Grand Prairie, Texas, by a $40 million corporation developed by John T. Tjaarda, a Detroit automobile designer. The automobile is described as a full-sized car capable of traveling 45 miles on a gallon of gasoline. It will be priced at approximately $1,000.

According to the inventor, the Cortez will weigh 1000 pounds less than today's standard car. Wheelbase will be 100 inches.

Nash Motors is very definitely in the light car field to stay. That sensational little NXI, introduced to the public last January, is going to be produced at a future date. Biggest bottleneck in bringing it out now is the critical steel shortage. But, as the result of a nationwide poll taken in connection with showings of the NXI, plus favorable public reaction to Nash's Rambler models, the company is pushing ahead as rapidly as possible with the development.

Some slight changes will be incorporated as the result of that poll. Among them will be a longer wheelbase, wider front seats, and the exclusive use of the 36 hp engine.

Kaiser-Frazer's light car, the Henry J, is now in production at Willow Run. Company officials report that it will make its public bow some time in August. Throughout the summer, K-F engineers have had the Henry J on the highway giving it exhaustive road tests in various sections of the country, and they claim it is ready for the competitive market.

Engineering Notes

Within the automotive industry there are several profound thinkers who believe that inside of six or seven years gas turbine engines will completely replace the engines and automatic transmissions in present-day passenger cars.

Such thinking is predicated, of course, on the assumption that the automotive industry will continue to develop normally without major interruptions for war or other causes. If progress is halted, the appearance of a practical gas turbine will be delayed by exactly as much time as companies are re-

quired to devote their energies to other types of production.

The belief in gas turbines, even though still limited at present, indicates that the industry has done a complete about-face. Previously, it was the general consensus here that such powerplants are impractical for general use. One exception to this is George T. Christopher, ex-Packard president, who has publicly predicted that gas turbines will be here in less than 10 years.

A number of the forward-looking engineers feel that in its future form the gas turbine will replace the high compression engines now being developed. More than that, they will eliminate all automatic transmissions just now becoming standard for every car.

While on the subject of automatic transmissions, here's more on GM's latest as reported last month. Because of the complexities of manufacturing the new device, it will not make its appearance before the spring of next year.

Look for Chrysler Corporation to equip Plymouth lines with Fluid Drive in the very near future. It will be optional equipment, of course.

The rumor mill in Detroit reports that Ford has two new powerplants under development these days for unveiling by 1952. One is a six-cylinder job and the other an eight, both presumably taking advantage of the high compression principle.

Styling Trends

Is it possible that future Nash cars will look more and more like European models? The question is being raised around Detroit as the result of the company's recent hiring of a famed Italian designer. He is Pinin Farina, noted throughout the Continent for his work of designing the current Cisitalia. In addition, he has styled such beauties as the Alfa-Romeo, Fiat and Bentley.

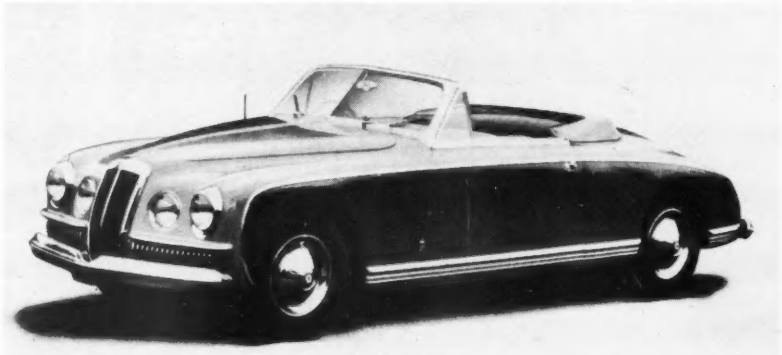
The international affiliation was announced by George Mason at a press luncheon last month in Detroit. Farina will act as consultant to Nash, although he will continue to live in Turin, Italy, where he operates a factory.

Many of the current design features of American cars are credited to Farina. For example, in 1930 he enclosed the front wheels of a European car in the same fashion as the present-day Nash. Ten years ago he designed a Bentley in England with the identical fender treatment found on 1950 Lincolns. Most recently he designed special cars for Jack Warner in Hollywood, California; and for Rita and Aly Khan, in Europe.

Odds and Ends

Detroit's first postwar automobile show will take place in November under the sponsorship of the Dealer Association. Traditionally, this has been one of the most elaborate shows in the country in former years. Automobile manufacturers already have plans well underway to participate.

DURING a recent shake-down run with K-F's new Henry J, this photo of forthcoming new light car was snapped for MOTOR TREND. Road is typical of areas utilized for testing during development

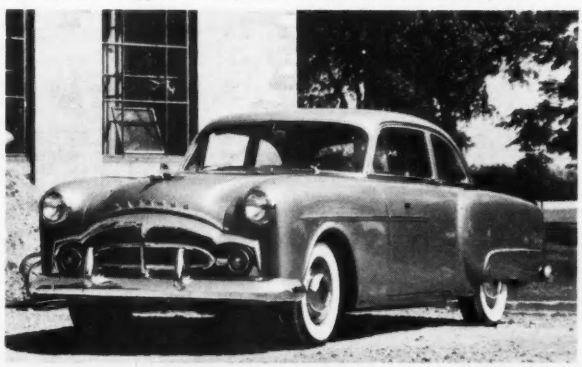


ANOTHER Farina-designed car, built on a Lancia Aprilia chassis. Farina will remain in Italy

No longer is the United States a large exporter of passenger cars. According to the Automobile Manufacturers Association, shipments to foreign countries have fallen to the lowest point in 25 years. The trade association reveals that in the first six months of the year only about 134,000 cars, or a little over three per cent of output, was shipped overseas. Pre-war exports accounted for approximately 10 per cent of all automotive production and often spelled the difference between profit and loss for some companies.

In an effort to recapture more of the U.S. market, Packard Motor is embarking on a $1 million factory improvement program. The company is erecting here four new engine test cells and a "sub-zero" experimental laboratory.

Chevrolet has set a new production record in the automotive industry, turning out 1,002,820 vehicles in a six-month period. It eclipsed a mark that stood for 25 years.



THREE latest models, radically new for Packard, introduced in August: '200' Business Coupe, '300' four-door sedan and the '400' Patrician

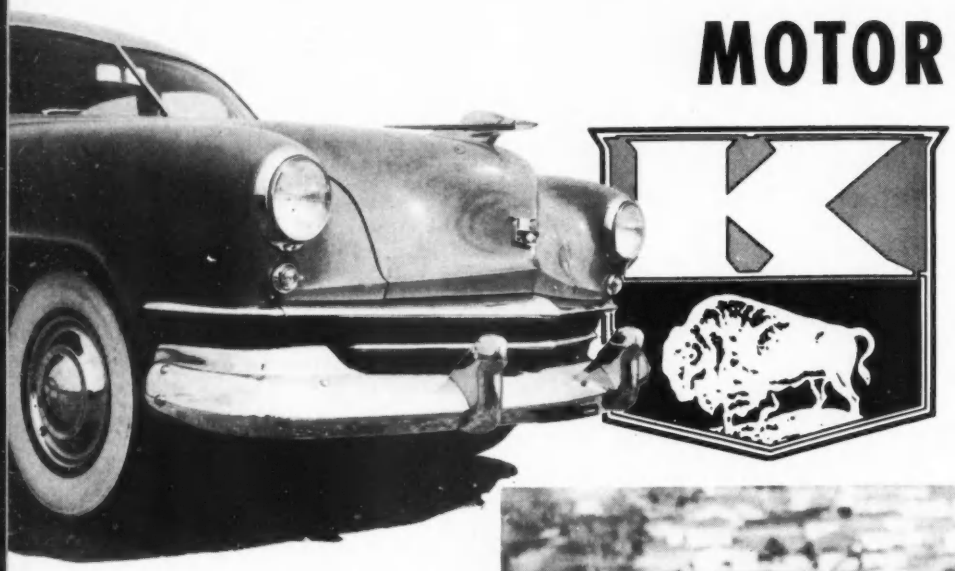
MOTOR TRIALS

Kaiser

ONE OF THE BEST-LOOKING CARS ON THE ROAD TODAY

by Walter A. Woron

PHOTOGRAPHS BY THOMAS J. MEDLEY



AT HIGH speeds on sharp turns, control is good, but body has tendency to heel over

OF ALL the new cars on the road today, the 1951 Kaiser is undoubtedly receiving the most acclaim for its looks—looks that combine to make a good compromise between functional and esthetic styling. During three days of comprehensive testing of a four-door Kaiser De Luxe Sedan we heard more praise about the appearance of this car than any previous one we have tested.

Through the Los Angeles Branch of the Kaiser-Frazer Corporation, we made arrangements to test the '51 Kaiser. Later, on a sunny, warm morning, we arrived at K-F Distributors at 1101 So. Figueroa Blvd. in Los Angeles, where we picked up the car. Their exuberance about their new product was only natural, and had its effect on us, for we were of the opinion that its performance would be more than just satisfactory.

The sedan furnished for the use of Technical Editor Don Francisco and myself, during its 2885 miles of driving, had been used by K-F Distributors as a demonstrator. Knowing that our motor trial would be comprehensive, they had tuned the engine to tip-top mechanical shape.

The 1951 Kaiser was evidently designed by Kaiser-Frazer engineers with looks high on the list of desirable qualities; it is a car for one who is impressed with the admiration of his friends and neighbors. The fact that some of the other traits of the ideal automobile were played down by the engineers will not be of too much import to this type of person. But, that is only natural—we all like to have our possessions admired.

Outstanding attributes of the '51 Kaiser, outside of its styling, are its unusual fuel economy, snappy acceleration, satisfactory maneuverability and handling characteristics, and positive brakes. The general driving feel of the car is good through the densest traffic to the open road; however, the type of driving to which it seems to be best suited is through city traffic. Here, because of the low speed torque of its engine, it threads its way without the slightest difficulty. On the open highway, it cruises satisfactorily, but is somewhat tiring to drive.

A Woman's Viewpoint

Fortunately, the length of this motor trial (which in all consumed three days and one night) made it possible for us to incorporate a phase of testing we had wanted to previously, but were unable to because of the time element. For the women readers of MOTOR TREND and even for the men whose wives may play an important part in making the final selection of the family automobile, we are presenting the woman's viewpoint.

After the first day of driving the Kaiser, which consisted mainly of becoming oriented with the car, checking it on the chassis dynamometer and making fuel consumption tests, I drove the car home and turned it over to my wife. I did not discuss any features of the car with her, so that my first impression would have no bearing on her comments or opinions. I merely sat back and took notes while she expounded the virtues of this or found fault with that, neither agreeing nor disagreeing with any of her remarks. The following is her opinion of the 1951 Kaiser:

"I am very favorably impressed with the general appearance of the car. I like the lowness, the streamlining and the amount of chrome trim. Insofar as the sloping back and the comfort of the seats are concerned, they meet with my approval, but I don't necessarily like the tufted material used for covering and the lack of padding over the springs at the rear of the front seat.

"As a woman, I appreciate the new bin-type glove compartment, which will save rooting for articles, but in filling it full, I found that items would drop to the floor

DON FRANCISCO

ROAD clearance is demonstrated in this test over a deep rut. Car did not get stuck

DON FRANCISCO

VISIBILITY behind the wheel of the 1951 Kaiser is unusually good, as can be seen from these photographs taken at driver-eye level

when it opened. The appearance of the crash pad and the instrument grouping were things that meet with my favor. However, I find it somewhat hard to reach the brake lever and the radio and ventilating controls. In operating the various controls, I noticed that the supports are a little weak. Although the rug-type floor pad gives the interior of the car a luxurious look, I am afraid that it will get dirty much too quickly.

"There is no difficulty in opening the trunk lock and lifting the lid. However, I believe that with the spare tire in a recessed position, it would be quite difficult to remove it in the event that the compartment is loaded with luggage.

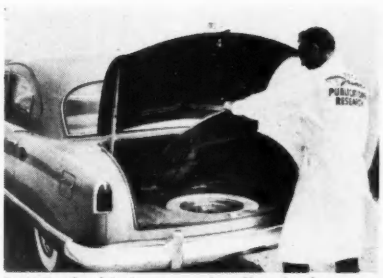
"In driving the car, I found the steering wheel definitely to my liking, for it seems to provide quick control. Visibility is excellent. I like the slow shift and the generally good handling feel. I found no difficulty in getting into or out of the car. Some points in driving the car that I think could be improved were the hard throttle pressure, which tended to tire my foot and leg, a certain amount of heaviness into corners in the front end, the noisy engine, body sway on corners, steering wheel shock over bumps, and too much brake pedal pressure."

Detailed Driving Report

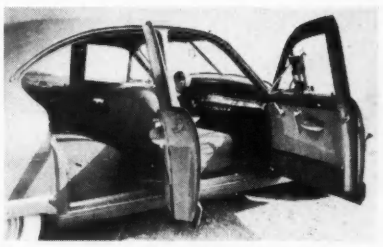
The fact that the steering wheel on the Kaiser is somewhat lower than it is on many cars might cause a person a bit more difficulty than usual in entering the car. However, once this person is behind the wheel, he will definitely appreciate the fact that the wheel is in a low, comfortable position. It takes a while to become accustomed to the small (17 inch) wheel, but after a few miles of driving, it has a very comfortable feeling. The window is just about the right height for the arm to rest on while driving.

It is fairly easy for a person of average height to reach all of the controls, while vision in all directions is unsurpassed. There are no blind spots visible, front, sides or rear. Legroom is satisfactory in the driver's position, but a bit more room on the passenger's side would make for more comfortable riding. The seat is quite low, which causes one's knees to be higher than usual. A lowered floor would alleviate this condition. Head room is satisfactory in both front and rear.

(Continued on page twenty-eight)



SPARE wheel is in recessed well under luggage compartment, allowing for more loading space

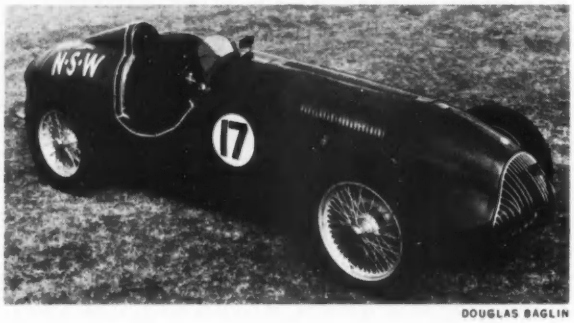


RIGHT—Crash pad, slope-back seats and relatively high floor are all visible in this view

FORDING a stream in a '51 Kaiser is easy because of its ample ground clearance

Fine, Fancy and Fast

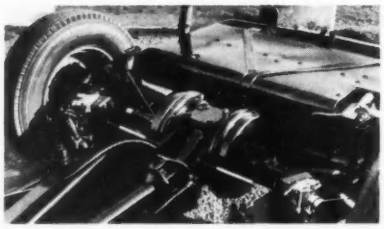
USING the 27-foot-long juggernaut known as the "Mormon Meteor," Ab Jenkins will attempt to lower the one-hour mark of 182.513 mph at Bonneville Salt Flats on September 4th. Jenkins holds all existing long-distance records from 100 miles up to 48 hours of continual running and possibly will attempt to break some of his longer records. The car has been completely reconditioned and Jenkins states that preliminary tests on the Salt Flats indicate that it is as fast as ever. Sponsoring both Jenkins' and Jackson's record tries will be General Petroleum, with American Automobile Association providing supervision

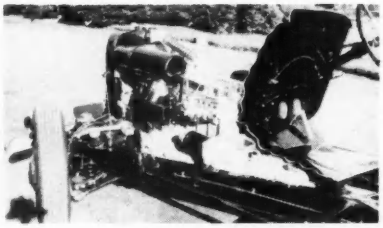


DOUGLAS BAGLIN

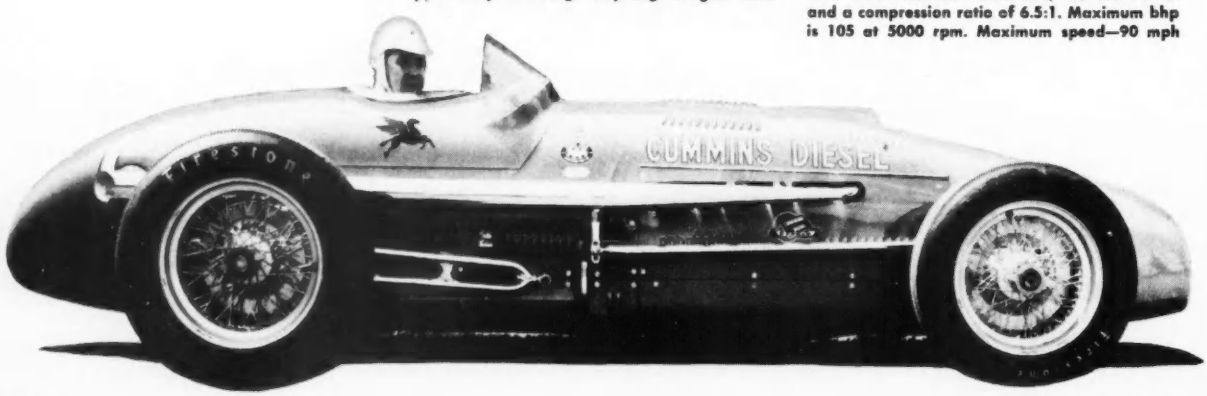
LEFT—Unrecognizable as an MG-TC is this special, owned by Richard Cobden of Sydney, Australia. The original MG chassis was used, whereas the body was built in Australia of aluminum and based generally on the Alfa-Romeo Alfette. Other modifications were made to the chassis, including fitting of 16-inch wheels on the rear and replacement of the standard shock absorbers with four André tele-control type shocks which can be adjusted from the cockpit. The engine has been tuned so that it now develops approximately 92 bhp. It has been electrically timed at 106 mph—covers a standing ¼-mile in 17.9 seconds

ON SEPTEMBER 4th, Jimmy Jackson, shown below seated in the Cummins Diesel Special, will attempt to set six international records for diesel-powered cars at Utah's Bonneville Salt Flats. The Cummins Diesel set a qualifying mark of 129.208 mph in the 1950 Indianapolis race, but failed to finish. Records to be sought by Jackson will be the one-mile mark of 158.87 mph and the one kilometer mark of 159.10 mph, both held by Capt. George Eyston of England; "Wild Bill" Cummings' five mile and five kilometer world records of 112.07 and 126.99 mph; and records for 10 miles and 10 kilometers, for which there are no official marks. The Cummins Special uses a 401 cubic inch, six-cylinder supercharged Diesel engine. Note that the cockpit area of the Kurtis-Kraft built car has been enclosed for the record try





UNORTHODOX in design is the 2½-liter Lagonda, which features many unusual items. Frame is 'X' type, without true side members, except for two tubes which act as body mountings. Braking system is unique, with rear drums being mounted adjacent to rear axle housing, appreciably reducing unsprung weight. Rear axle housing is mounted on tubular frame member running transversely, with torsion bars (seen on inside of frame member) used for springing. Axle shafts are 'U' jointed. Front suspension is by coils and double wishbones. Engine is 6-cylinder, of 163 cu. in. capacity, with twin overhead camshafts, inclined valves and a compression ratio of 6.5:1. Maximum bhp is 105 at 5000 rpm. Maximum speed—90 mph



FIBERGLAS...

A THREAT TO STEEL

by Eugene A. Jaderquist

CONSOLIDATED-VULTEE

SINCE the last war, Fiberglas (a registered trade name for the product of Owens-Corning Fiberglas Company) has become a possible threat to the makers of steel and aluminum. Plastics manufacturers have taken Fiberglas cloth, impregnated it with styrene-base resins, and produced a new material for the construction of automobile bodies. In common practice, three or four layers of the impregnated fabric are bonded together to produce a laminated part that has found favor with a few of the more experimental auto builders.

Plastics have been around so long now that they aren't really news anymore. Thousands of small companies are making a good living building cigarette cases, furniture, Christmas decorations, and toys out of the synthetic resins. Fiberglas is 10 years old in commercial applications and that makes it old stuff too. But if the combination of Fiberglas and plastics can replace steel in the nation's most important industry, the resulting economic upheaval will be the most drastic you have felt since the perfection of mass production.

If you're a steady reader of MOTOR TREND, you've seen pictures of Fiberglas bodies. The Kurtis Sports Car is one example. The Imp is another (see photograph). Consolidated-Vultee Aircraft Company designed their flying Convair Car (see photograph) for Fiberglas-reinforced body construction and Howard Darrin used the same material in his sport car, the Darrin.

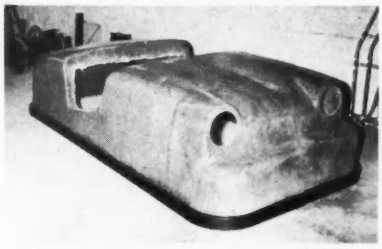
From all reports, these users were delighted with the bodies delivered to them. Frank Kurtis discovered that his customers were more than willing to accept the plastic body on its own merits, making a persuasive sales campaign unnecessary. Fiberglas-reinforced plastic will not rust, is not affected by salt water or dry salt from ocean or desert. It can be painted, chrome-plated over a copper base layer, punched, drilled, and cut. It has high impact resistance, springing back into shape after a sudden blow. It is much lighter than steel and can be formed in large sections, thus eliminating many of the seams necessary in steel bodies.

MUCH assembly work on Convair Car was eliminated by making the body in large sections

CONSOLIDATED-VULTEE.

FLYING Convair Car, with detachable wing, had Fiberglas body, with only five sections

BELOW—Fiberglas, much lighter than steel, can be formed in large sections from complicated molds. Body for the Imp, a two-passenger roadster, is made of one-piece laminated Fiberglas



E. RICKMAN

Plastics manufacturers readily admit that Fiberglas-reinforced plastic is not as strong as steel under tensile stress. Where steel bends and holds, Fiberglas breaks. But, ask these men, is extremely high tensile strength necessary in an automobile body? In a high-speed collision, steel might be a more effective barrier between you and the other car, but only a steel plated driver could live to appreciate it. The give in a Fiberglas body is cited by plastics men as safer than the toughness of steel.

They have an example to prove their point. The Convair Car was in the air when its airplane ran out of fuel and made a crash landing. As the automobile-airplane unit was designed, the belly of the plane and the roof of the car were held tightly together and the wheels of the car served for landing and take-off wheels. In the crash landing, the

(Continued on page twenty)

IT'S TRANSPORTATION . . .

What more do you want?

by Lloyd James

NOTE: Last month we published an article "Is the Auto Just Transportation?" to which we added an editorial note that the article was one side of a controversy. We said we would welcome contributions setting forth the other side. We got what we asked for. Here is Mr. Lloyd James' defense of Detroit-made machines.—Editor

MISTER—your intelligence as an automobile buyer is being put to question. There is a group of people who think that if you buy a new Detroit-built automobile annually you're at least a two-thousand-dollar-a-year sucker.

Who's saying it? The sports car boys, and they're couching their opinion in no uncertain terms. Your new crate is "a fat beast, a poor-handling, underpowered barge designed for women. Being a gutless eyesore, it is neither economical nor in good taste." We must assume at this point that the sports car is none of these—but let's not quibble. We'll just look at your Detroit creation and see what we come up with.

In the first place—why the automobile? It was originally designed as a piece of transportation and is still considered so, even to this enlightened day. Let's face it. If you're Joe Average American, you simply haven't got two thousand bucks to throw away on a toy for your wife, an entry for Junior in a local Gymkhana or a Sunday cruiser. If all this comes in the bargain at no extra cost, fine! But basically you want transportation, and that is what Detroit is building today.

This country operates on the economic premise that we all share in the nation's productive ability. This means that any mass-production manufacturer must design one product to meet the varied needs and demands of hundreds of thousands of people.

In the case of the American production automobile, it must serve as many purposes as there are customers. Salesman Sam covers four states a month over many varied road surfaces and under many climatic conditions; Trucker Tuck, who, at the end of the week is sick and tired of pushing 10 tons of hard steering, slow poke giant through traffic, just wants to relax behind an automatic transmission in the comfort of decent seats (he won't be a martyr to a hard ride!); Nincompoop Nellie merely wants something to get her uptown and back in grander style than Mrs. Longnose next door; Cowboy Cal thinks the horse has seen its day and uses his convertible to patrol fence lines and to court Judy; . . . and on and on.

Here's what the Detroit engineers have to consider: Grandma Jones doesn't see very well and her reflexes are slower than the Seven Year Itch. So she'll lug her Nash all day at 10 mph in high gear, with the temperature in the shade at 110 degrees, and never know that her engine didn't overheat. Farmer Slow, who isn't too smart about cars, discovers the tractor is on the blink. He asks Lem to take those five 100-pound sacks of fertilizer out of the Ford Crestliner's trunk and hook the car up to the plow—the East 40 has to be done by sundown. Prolific Petunia wants to take the kids over to visit cousin. So all 12 of them crawl into their new Chevrolet, and with the frame riding directly on the axle and the springs bottomed, off they go, down Washboard Highway. Leadfoot Larry is bound to forget that the cost of engine upkeep is in direct proportion to the pressure on the acceleration pedal.

The Detroit engineers should be awarded 10 points and a gold star for being able to design and produce, year after year, a reliable piece of complex machinery that keeps on running no matter how much abuse it gets. Consider: Tightwad Terry wouldn't spend Confederate money on upkeep of *any* car. After his Plymouth is five years old, it needs rings, bearings, has a cocked rod, fouled plugs and no points. He runs her on kerosene and moth balls and has convinced himself that what mud splashes up on the underside will keep her lubed. Dollars to doughnuts he'll get another 50,000 miles out of her before he finally has to pop for those plugs. Just imagine how far a temperamental, high-strung sports car would get under the above-mentioned, slightly exaggerated conditions.

Let's delve into some of the pet gripes the Spartan Sportsters have.

Soft Springing . . . "Mac, if you enjoy an easy ride, if you like to reach your destination fairly relaxed and not too thrashed, you're not of the tough pioneer stock your father was. And besides, you're not enjoying the ride." (Papa had an outhouse—let's get rid of our indoor porcelain fixtures . . .)

Soft Seats . . . (There go those fixtures again—and fling the telephone out too, since this easy life could only lead to decadence.)

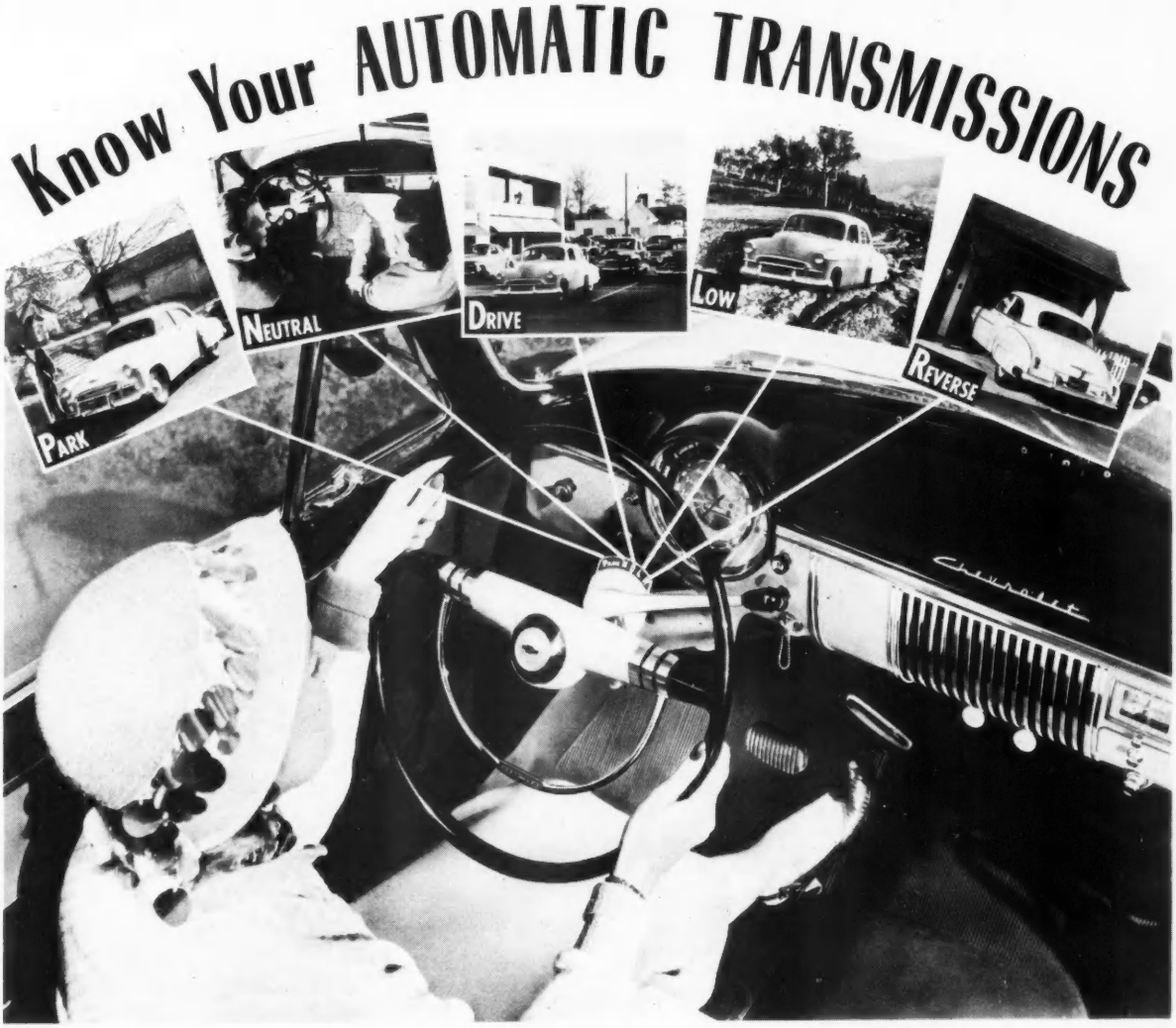
Quick Steering . . . "Mac, you're lazy if you like a steering wheel that's easy to turn. You have to turn your wheel a full half turn farther than I to get around the same corner." (Well, at least Aunt Sissy can make it around that corner too.)

Easy Handling . . . "Mac, it just won't corner well. You'll roll it first." (The next time you enter the family bus in a Grand Prix, remember to snub the shock absorbers. And keep her under 80 mph when corkscrewing down Suredeath Gulch.)

Well, men, let's get serious for a moment. The foregoing is a bit silly, but it points up one undisputable fact: American automobile manufacturers cannot build a passenger car with all the sports car characteristics. There are too many considerations and too many people to please. Prolific and her brood wouldn't last 10 minutes if she had the power-to-weight ratio of a souped-up Allard built into the family job. And Leadfoot would be in hot water all the time if his floorboarded Olds had quick steering and he got the front wheels off the ground at 90 mph. A one-inch turn of the wheel under such conditions would guarantee a pile-up. Furthermore, no one wants to wrench his arms out of their sockets warping two thousand or more pounds of inertia into a new line of travel just for the sake of quick steering, when the mechanical advantage of higher gearing will do the same job with less effort.

It is being said, and with considerable

(*Continued on page thirty*)



DO YOU KNOW WHY AUTOMOTIVE ENGINEERS SAY THAT THE CLUTCH IS A THING OF THE PAST?

by Don Francisco, Technical Editor

DRAWINGS BY REX BURNETT

AUTOMATIC transmissions have been, and will continue to be, high on the list of engineering agenda for design-conscious automotive manufacturers. What's back of this interest? Progress in the modern-day automobile, or the answer to lazy drivers who no longer care about *driving* their cars?

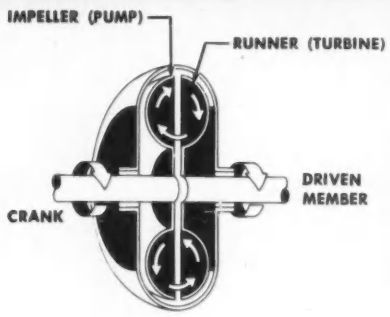
The automatic transmission, in its present form, isn't new—in 1895 the Dey-Griswold used a torque converter—but is merely the application of an old principle: converting the torque (force of rotation) of the crankshaft through a fluid coupling to apply motion to the rear wheels.

In the present mechanical transmission the same principle applies, the basic difference being that this force is converted mechanically through the efforts of the driver. This driver labor is what the automatic transmission eliminates—for no clutch and a minimum of manual gear shifting is necessary.

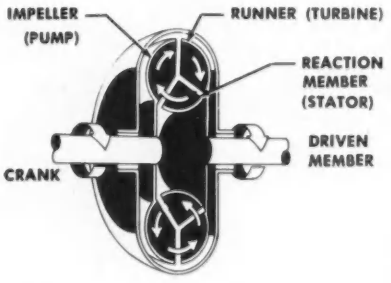
Automatic transmissions are desirable for use with many modern automotive engines, especially when in the hands of inexperienced drivers, as these engines are not designed to operate under heavy load at low engine speeds. The possibility of lugging an engine is eliminated when an automatic transmission is used. Actually, the term "automatic," when applied to transmissions, is not technically correct because it is necessary for the driver to select the driving range for the immediate conditions. After the correct range has been selected, most of the transmissions become "self-shifting units" and automatically compensate for variations of load and torque.

Various companies have met the problem differently, resulting in several combinations of essentially similar components. As far as the operation of the automobile is concerned, the net result to the driver, which after all is the major factor, is much the same.

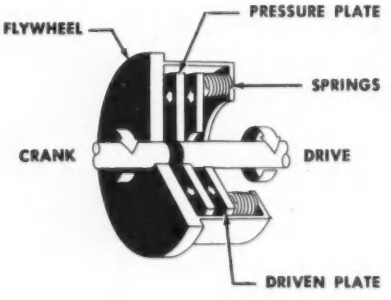
Driving without operating a clutch pedal or shifting gears is considered a boon by many. To others, the continual shifting of some automatic transmissions, when used in traffic, or the unnecessarily high engine speeds required by hydraulic converter type transmissions to accelerate the car from rest to cruising speeds with any degree of performance, are extremely undesirable features. The adverse effect of most automatic transmissions (especially those of the hydraulic converter type) on gasoline mileage is a point which should not be overlooked. This increase in gasoline consumption, over that of cars with manually shifted transmissions, is due mainly to automatic shifting to lower gears at low car speeds with gear-type transmissions, and to the high per cent of slip-



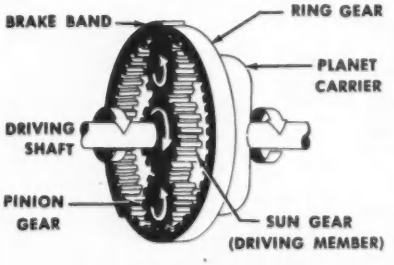
HYDRAULIC COUPLING



TORQUE CONVERTER



FRICTION CLUTCH



PLANETARY GEARSET

For this condition, the ring gear is stationary, and the sun gear, planet carrier and driveshaft are rotating in the direction shown by arrows.

page in hydraulic converters when operated under the same conditions.

The essentials necessary between the engine flywheel and the driveshaft of an automobile are: a means of gradually applying the power of the engine to the driveshaft, an arrangement to multiply the torque for forward movement, a means of reversing the torque for reverse movement, and a way of positively disconnecting the engine from the driveshaft. The means used to gradually apply the power to the driveshaft can be a friction clutch, hydraulic coupling, or hydraulic torque converter. An arrangement to multiply torque for forward and reverse movement and also disconnect the engine from the driveshaft when desired is known as a "transmission" or "torque converter."

All transmissions, torque converters, etc., regardless of their design or name, achieve the same result, viz., convert low torque at comparatively high crankshaft speed to high torque at comparatively low driveshaft speed.

Automatic transmissions in modern passenger cars make use of a combination of two or more basic units, arranged and actuated according to the ideas of the engineers involved. A brief description of the various units and their purpose may enable the reader to better understand the operation of the various combinations of units.

Friction Clutch

A friction clutch consists of a pressure plate assembly and a driven plate, which is a spring steel disc with cork or asbestos base friction facings which contact the flywheel and pressure plate (see drawing). The pressure plate housing, containing the spring-loaded pressure plate and release mechanism, is bolted to the flywheel. When used with a hydraulic coupling, the clutch is mounted between it and transmission. The release mechanism is actuated by a clutch pedal or an automatically-controlled vacuum cylinder. Torque is transmitted to the transmission by the driven plate when it is held between the flywheel and pressure plate. When the clutch is released, the driven plate does not rotate and the connection between the flywheel and transmission is broken.

Hydraulic Coupling

A hydraulic coupling consists of two basic units, an impeller and a runner, and is designed to transmit power through the medium of oil (see drawing). These devices, usually built as a part of the engine flywheel, transmit power smoothly and without danger of overloading the engine. The impeller, driven by the crankshaft, and the runner each resemble one-half of a scaled-down tire casing, cut around the center of the circumference to form two circular, concave sections. The concave sections are divided into several compartments by vanes, the number of which differs slightly in the two units. The open sides of the impeller and runner face each other with a small clearance between them. They are enclosed in a sealed compartment filled to approximately 90 per cent of its volume with light mineral oil. When the impeller is rotated by the crankshaft, oil circulates between it and the runner, resulting in a transmission of torque from the impeller to the runner.

Hydraulic Torque Converters

Hydraulic torque converters are similar to fluid couplings with the exception that additional vaned reaction members are installed between the impeller and runner (see drawing). Reaction members are free to rotate in one direction only and are used to provide hydraulic leverage between the impeller and runner, thereby multiplying the engine torque. Units of this type multiply engine torque at low car speeds and assume the characteristics of a hydraulic coupling at higher speeds.

Combination Sliding Gear and Constant Mesh Transmissions

Combination sliding gear and constant mesh transmissions utilize two parallel sets of gears mounted in a suitable case. Gear changes, providing three forward ratios and one reverse, are effected by meshing the gears in different combinations. Constant mesh gear changes are made by locking the gears to the transmission mainshaft by means of a positive tooth clutch. This clutch has a friction cone which engages a polished surface on the gear to synchronize the speed of the two units so that the engaging teeth will mesh without clashing. Second and high gears are usually constant mesh, with low and reverse being sliding gears.

Planetary Transmissions

Planetary transmissions consist of planetary gear sets connected and controlled to provide two or more forward speeds and one reverse. Gear sets are comprised of three basic units: sun gear, pinion gears, and ring gear (see drawing). The sun gear, with teeth on its outer circumference, is mounted inside the ring gear, which has teeth on its inner circumference. Two or more identical pinion gears are installed between them, meshing with the teeth of each. Pinion gears are mounted on studs, on which they are free to rotate, attached to a planet carrier. The sun gear, planet carrier, and ring gear are supported in such a way that any one or all of them can revolve in the same or opposite directions about a common axis. Ratio changes are accomplished by preventing the rotation of one of the units by means of hydraulically actuated brakes. Pressure for the brakes is supplied by oil pumps.

Not New Developments

Automatic transmissions and hydraulic couplings are not new developments for American passenger cars but were first presented several years ago by a few manufacturers. Much improvement has been made since these first units appeared. The following is a discussion of the cars now available with automatic transmissions and a brief description of their operating characteristics.

Buick Dynaflow

The Buick Dynaflow is a combination of hydraulic torque converter and planetary transmission (see drawing). The planetary transmission is manually controlled and provides two forward speeds and a reverse. The car does not have a clutch pedal, with the driving ranges being selected by moving a lever mounted on the steering column. All normal forward driving is done in DRIVE position, while LOW is used for steep grades or hard pulling. In DRIVE range, the planetary gears are locked in the inoperative, or direct, position and engine torque is multiplied by the hydraulic torque converter only. In LOW, the planetary gears provide a ratio of 1.82:1. NEUTRAL is used when it is desired to run the engine above idling speeds without movement of the car. With the lever in PARK, a lock engages a gear on the transmission output shaft and prevents movement of the car. The engine cannot be started unless the selector lever is in PARK or NEUTRAL position.

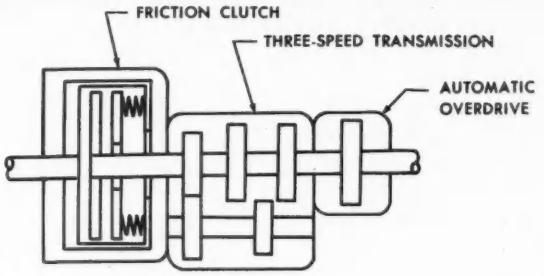
Cadillac, Lincoln, Nash, Kaiser, Frazer, Oldsmobile, Pontiac

Late models of the automobiles noted above are available with the Hydra-Matic transmission as standard or optional equipment.

(Continued on page thirty-two)

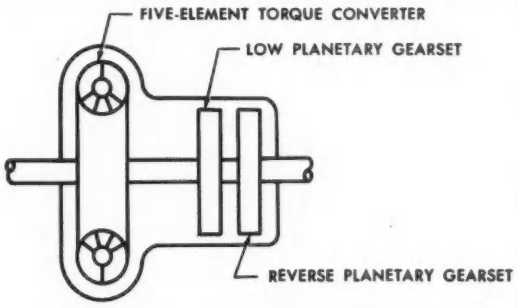
OPERATION OF AUTOMATIC TRANSMISSIONS

The accompanying sketches and brief operational descriptions will serve as a guide to those interested in the differences in function of the automatic transmissions now on the market. For clarity, the drawings have been made as schematically simple as possible.



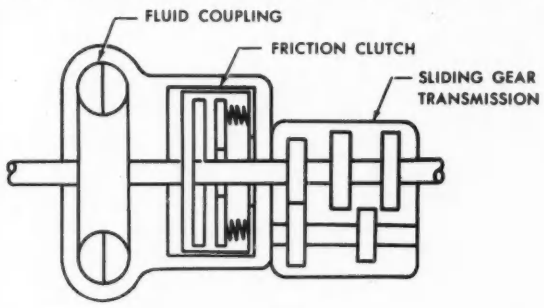
SUPERMATIC

LOW—Low gear of transmission only
DRIVE—2nd and 3rd gears of transmission, automatic shift to overdrive



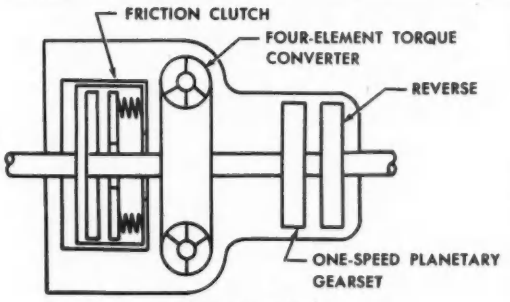
DYNAFLOW (POWERGLIDE SIMILAR)

LOW—Planetary gearset and torque converter
HIGH—Torque converter



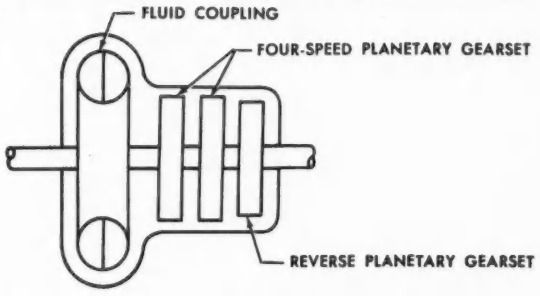
FLUID DRIVE

LOW—Fluid coupling with 1st and 2nd gears
HIGH—Fluid coupling with 3rd and 4th gears



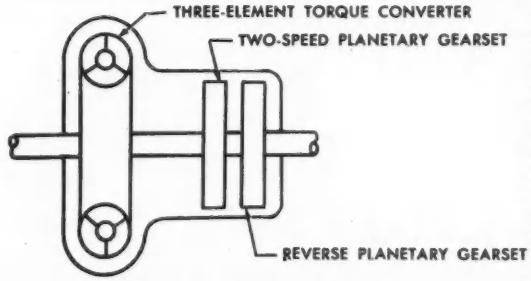
ULTRAMATIC

LOW—Planetary gearset and torque converter
DRIVE—Torque converter for start; friction clutch shifts unit to direct drive



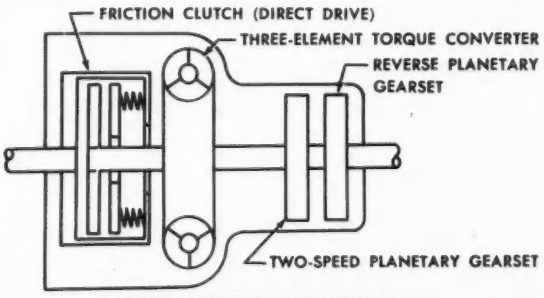
HYDRA-MATIC

LOW—1st and 2nd gears of planetary gearset and fluid coupling
DRIVE—2nd, 3rd and 4th gears of planetary gearset and fluid coupling



FORD BORG-WARNER

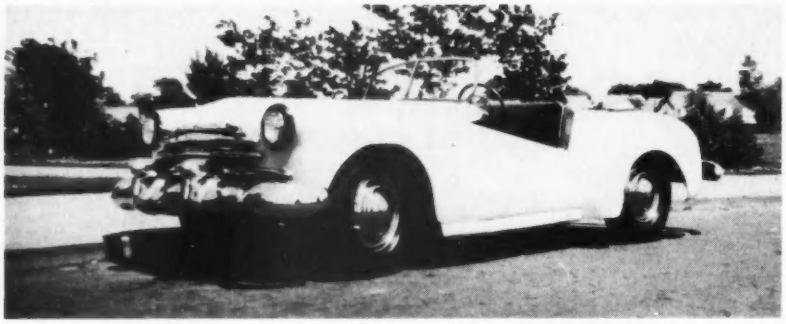
LOW—1st and 2nd gears of planetary gearset plus torque converter
DRIVE—2nd gear of planetary gearset and torque converter for start, shifts to torque converter only for high gear

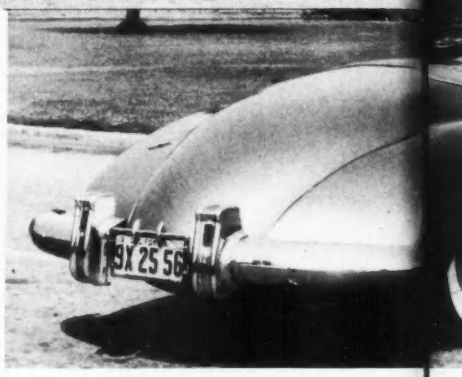


STUDEBAKER BORG-WARNER

LOW—1st gear of planetary gearset and torque converter
DRIVE—Start in 2nd gear of planetary gearset and torque converter; friction clutch shifts unit to direct drive, locking out torque converter

DESIGNED in 1945, and built in 1948 by Paul Omohundro of Clearwater, California, this custom car has smoother lines than many a foreign product. The all-aluminum body has been placed on a Mercury chassis and uses a '48 Cadillac engine and transmission. The car boasts such fine features as pounded brass door handles and upholstery of unborn calf and saddle leather

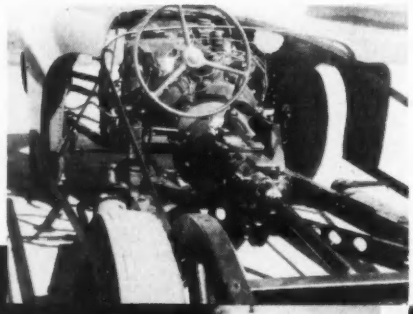




CUST *a*

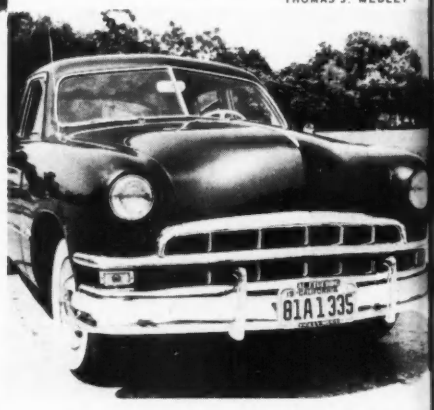
A SPORTS car with mixed ancestry is the one shown in these three photos. Registered as a '37 Willys Roadster, the car includes parts from the following cars: Cadillac front bumper, mixed Pontiac and Chevrolet grille, Chevrolet front fenders, GMC pickup truck fenders, Studebaker windshield, along with much sheet metal work. Engine is '46 Merc, Ford transmission, '37 Chrysler overdrive, all mounted in six-inch dropped frame. Built by B. VerNooy, Okla.

B. VER NOOY



BELOW—Not a new model car, as it has been taken for, but a '50 Ford with unusual grille designed and built by Barris Kustom Shop. Grille is combination of V'd '48 Cadillac grille and wrap around pieces from Ford lights

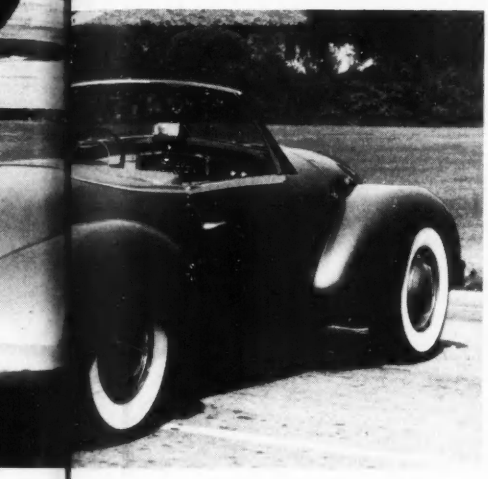
THOMAS J. MEDLEY



RIGHT—Creator of this unusual custom-built car is Raymond Jones of Dallas, Pennsylvania. He started with a '48 Cadillac, stripped it and wound up with car shown. Wheelbase is 138

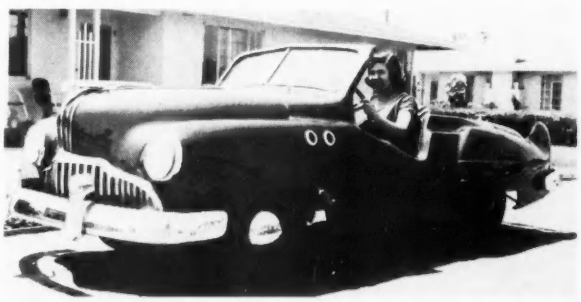
BERT HUSBAND

BELOW—Ray Jones' Cad boasts an inter-changing steel top, which can be removed and replaced with canvas top. Spare tire enclosure is part of hydraulically operated trunk lid. Only dashboard is original

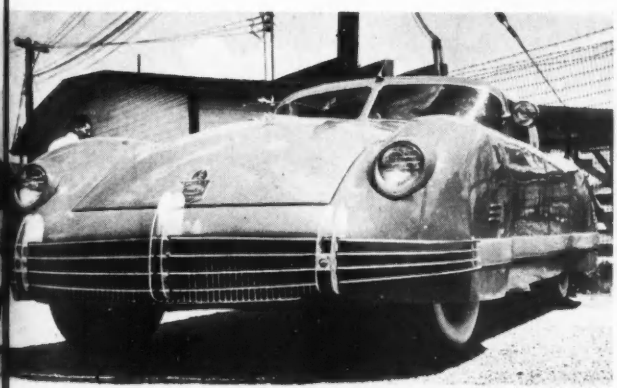


been
grille
Shop.
grille
lights
EDLEY

M S

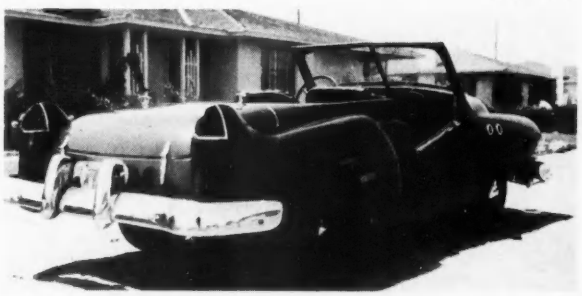


K. TRESSLER



J. W. COMMANE

ABOVE—Supersonic Special, designed by Lou Fageol, president of the Twin Coach Co. The car is equipped with a Fageol Twin Coach, high compression (10:1), bus engine, developing 275 bhp using propane. It is reported that Supersonic Special has been timed at 135 mph



ABOVE—Originally a '48 Crosley Station Wagon, this small custom job boasts a lengthened frame, Studebaker front fenders, Buick grille, Pontiac hood, Cad fenders, Auburn trunk and Pontiac bumpers. Car was built for K. Tressler by Arnold Johnson, both of Fresno, Calif.

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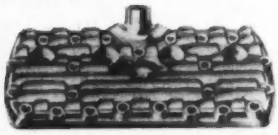

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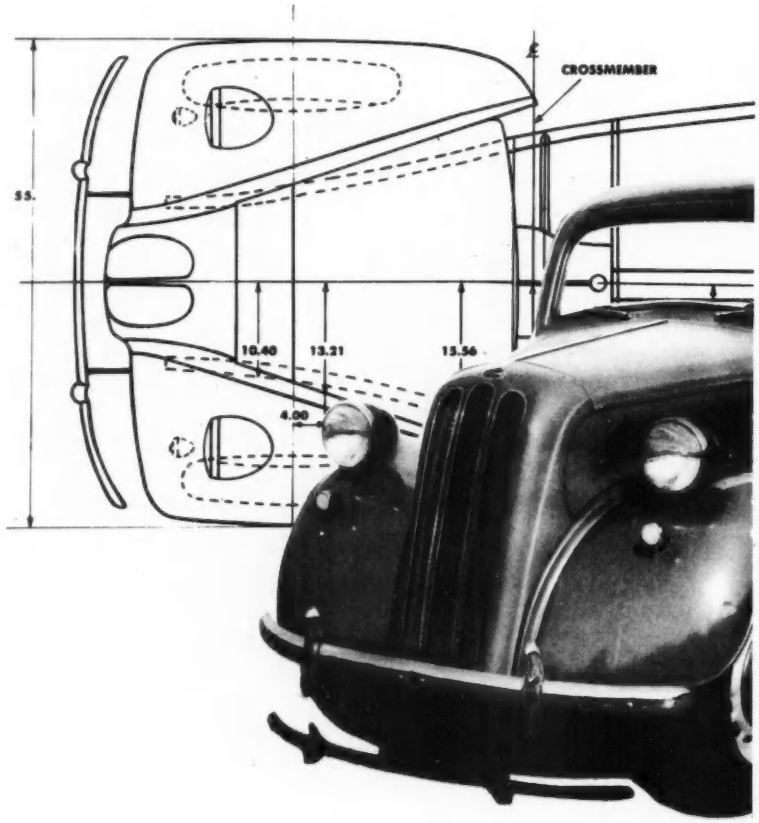

BUT ONLY if you hurry. Yes, there's still time to enter the Ford Anglia Design Contest that was announced in September, 1950, MOTOR TREND.

This will be your last chance, however, for the contest closes on October 1, 1950, at midnight. All entries must be postmarked on or before that date.

So send in your entry as soon as possible. Don't delay another day. *You can win!*

If you have already decided to enter, or have entered the contest, please take note of the following minor changes in the Official Rules (changes are in italics):

Under 4. ELIGIBILITY—The contest is open to . . . except employees *and their families* of MOTOR TREND, employees and their families of the Ford Motor Company . . .

Under 5. HOW TO ENTER—Rights to *all entries* are reserved by the Ford Motor Company.

Under 6. DEADLINES—The contest closes at midnight, October 1, *1950*.

For any further information on the Ford-Anglia Design Contest, write, 'phone, or wire: MOTOR TREND CONTEST, 1015 S. La Cienega Blvd., Los Angeles 35. Calif., Crestview 4-6149.

Fiberglas

(Continued from page thirteen)

automobile was crushed, but the pilots lived. Plastics men say that a steel-bodied automobile would have transmitted enough shock to the airplane to kill the pilots.

The most enthusiastic advocate of Fiberglas-plastic bodies concedes one point to the steel-makers—production economy. At the present stage of development, steel bodies can be mass-produced for less than ⅛ the cost of Fiberglas. Raw material prices are one reason.

The Kurtis Sports Car bodies were made by Paul Ohmohundro in Paramount, California. Each front fender section required six yards of Fiberglas cloth, weave No. 162, @ $1.76 per yard; 10 pounds of resin (Selectron 5003) @ $0.40 per pound; a total cost of $14.56 per panel. The same amount of steel would have cost approximately $3.00.

This material cost is more than offset by the saving in labor where extremely limited production is expected. In 50-unit per year lots, Fiberglas construction is definitely cheaper. At that rate, tooling for either aluminum or steel production would be

prohibitively expensive. But when production begins to rise, the hand labor necessary in most present methods of plastic manufacture keeps costs high, while the use of already developed machinery for metal shaping brings the cost of a steel or aluminum body down.

Most plastics manufacturers are confident that the future will bring new processes to the plastics industry, eventually bringing the price of high production down to compete with the metals. In the event war-time steel allocation controls are reinstated by the government, which seems highly likely at this date, major auto manufacturers may turn to reinforced plastics as an alternate material. Of all the non-metallic reinforcing agents, glass fibers are the strongest now manufactured, so it seems likely that research will be concentrated on low-cost production of parts like those now being hand-made.

Fiberglas is pure glass, spun into strands about 1/20 the diameter of a human hair by a process patented by Owens-Corning Fiberglas Company. To make Fiberglas cloth, the strands are twisted into threads which are woven by ordinary methods into different patterns, depending on the use to which the cloth is to be put. For automobile bodies, a square-woven cloth of 225 2/5 strands each direction per square inch is used. The cloth is supplied to plastics manufacturers in rolls.

There are many kinds of resins, but the kind used in automobile bodies is the low-pressure type, derived from petroleum. Immediately before use, a catalyst is added by the user to start the resin on its process of hardening.

In the shop, a negative, or female, mold is made of plaster or cast phenolic resin or metal. This mold must be a smooth and perfect replica of the part to be made. It is first coated with a "parting agent" to facilitate removal of the completed part. Then one piece of Fiberglas cloth, tailored to fit, is laid in the mold, smoothed out, and impregnated with the resin, using a brush, spray, or knife. As many layers of cloth as are needed are built up in the mold. Then the curing process begins. The method of curing depends on the kind of catalyst added earlier. Some catalysts are heat sensitive and the curing is done in an oven at about 250 degrees; some catalysts are light sensitive and the mold need only be placed in the sunlight to harden properly. When the curing is completed, the part is stripped from the mold, trimmed, smoothed, and primed for its coat of paint.

This, of course, is only one method. Presses are used in some cases, though large presses for this kind of work are not common. If a press is used, the layers of cloth are laid in a female mold, resin is added by hand or by an injection system, the male die is brought down under light pressure and the part is formed. If a heat catalyst is used in this process, the dies are steam-heated and curing can take place in a matter of minutes in the die.

Of the cars mentioned so far, the Darrin and the Convair were open mold, sunlight-cured, while the Kurtis was open mold, heat-cured. The most expensive part of the process is the making of the original plaster model from which the molds are taken. In small production, the steps outlined above are not as expensive as hand-forming metal. But it is obvious that the entire process is highly impractical for quantity production.

The major hope of the plastics industry at present is known as the "Preforming" process. Cut glass fibers, one to three inches in

(Continued on page twenty-six)

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The Belond EQUA-FLOW EXHAUST SYSTEM

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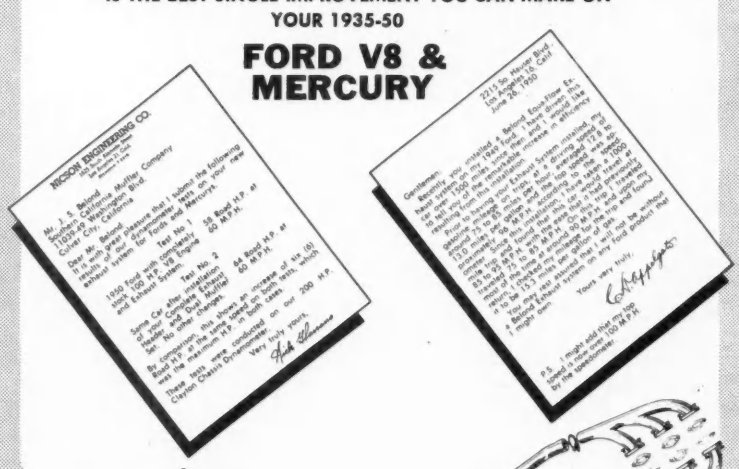
FORD V8 & MERCURY


MISSION ENGINEERING CO.
Mr. J. S. Belond
Southern California Muffler Company
11039-49 Washington Blvd.
Culver City, California
Dear Mr. Belond:
It is with great pleasure that I submit the following results of our dynamometer tests on your new exhaust system for Fords and Mercurys.
Test No. 1
1950 Ford with completely stock 100 H.P. V8 Engine and Exhaust System.
58 Road H.P. at 60 M.P.H.
Test No. 2
Same Car after installation of your Belond Equa-Flow Header and Dual Muffler Set. No other changes.
64 Road H.P. at 60 M.P.H.
By comparison, this shows an increase of six (6) Road H.P. at the same speed on both tests, which was the maximum H.P. developed on our 200 H.P. Clayton Chassis Dynamometer.
Very truly yours,
2215 So. Hauser Blvd.
Los Angeles 16, Calif.
June 26, 1950
Gentlemen:
Recently you installed a Belond Equa-Flow Exhaust System on my 1949 Ford. I have driven it for approximately 7,500 miles since I had it installed and would like to report the remarkable increase in efficiency resulting from the installation.
Prior to having your Exhaust System installed, my gasoline mileage was only a dismal 13.2 to 13.8 miles per gallon, and a very poor top speed of 75 to 80 miles per hour. Since installation I've had a 1000 gallon tank of gasoline and have averaged 17.5 miles per gallon, and a top speed of 90 to 95 miles per hour. In addition I've had a noticeable increase in pick-up and flexibility.
Another thing that has pleased me very much is the fact that I've had no trouble with vapor lock since installation of your system. Before I had your system installed, I had to stop every 15 minutes on hot days and let my motor cool off. Now I can drive for hours without any trouble.
You may use my name as a reference if you wish to, as I am very pleased that I selected a Belond Exhaust System on my Ford product that I might own.
Yours very truly,
P.S. I might add that my top speed is now over 100 M.P.H. as recorded by the speedometer.

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It is a well known fact that the Standard Congested Exhaust Systems on Fords and Mercurys create an Exhaust Back Pressure that consumes a large percentage of the Engine Horsepower preventing that percentage of the Engine Horsepower from reaching the rear wheels.

The Belond Equa-Flow Exhaust System eliminates Exhaust Back Pressure, increasing the Horsepower that reaches the rear wheels.

Other benefits of eliminating Back Pressure are: increased gasoline mileage, higher top speed, improved all around performance, reduced possibility of overheating, longer Engine life and a definite reduction in operating and repair costs.

Belond Equa-Flow Exhaust Systems are available complete with all parts necessary for easy installation including genuine straight through Steel Packed Mello-Tone Mufflers.

In cases where the straight through mufflers are not desired, the Equa-Flow Exhaust Systems may be ordered less mufflers. Stock Mufflers may then be used, (except in the case of 1935-36 V8) with a very little loss in efficiency and will be very quiet in tone.

For the convenience of those who may already have a Dual Muffler Set installed, the Belond Exhaust Headers and Extensions to Mufflers may be ordered separately.

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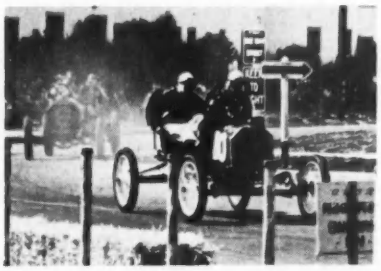
MY CAR IS: _____ MAKE _____ YEAR _____ MODEL _____ BODY STYLE

(PRINT NAME AND ADDRESS CLEARLY IN MARGIN)

THE SPORTING SCENE

LAST month's editorial "Speed *vs.* Sport" has stirred up an immense amount of comment, most of it strongly in support of MOTOR TREND's position that greater unity between hot rod and sports car groups is much to be desired.

The idea has had immediate and tangible response from the Cal-Neva Timing Association, up to this point a coordinating body for 12 hot rod clubs in California and Nevada. At a general meeting preceding its August 6th lakes meet at Reno, the subject



ENTERING Ocean Avenue around a 90-degree turn is Louis Mahoney on the winning 1914 T, followed by Robert Gotleib on a 1910 Simplex

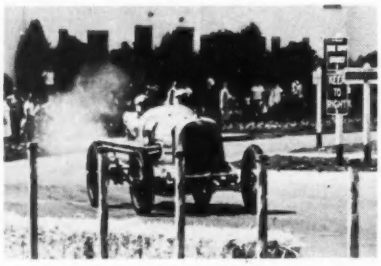
was thoroughly discussed and a decision reached: sports car clubs will be welcomed as Cal-Neva affiliates, and individual sports car owners accepted as guest entries at all future events.

There are plenty of sports car enthusiasts interested only in flat out speed and just as many hot rod fans passionately concerned with the roadability of their machines. Moreover, Cal-Neva's event calendar is itself ample proof that the two groups have more in common than their occasional mutual antagonism might indicate. This year the Association is holding three lakes meets, three road runs, a reliability run, and a hill climb or two.

The advantages of affiliation to all concerned are manifold. Cal-Neva has done a vast amount of spade work in locating courses, in obtaining such essentials as top-quality photo-electric timing equipment and thorough insurance for all their events. Many sports car groups have performed similar labors and a pooling of resources will mean more sport and more variety of sport for everyone. This, incidentally, was the reaction of MG Car Club and SCCA officials with whom we've discussed Cal-Neva's friendly position. It's obvious that this sort of cooperation is possible everywhere, and we want to hear from members of both groups who are interested in taking the forward step.

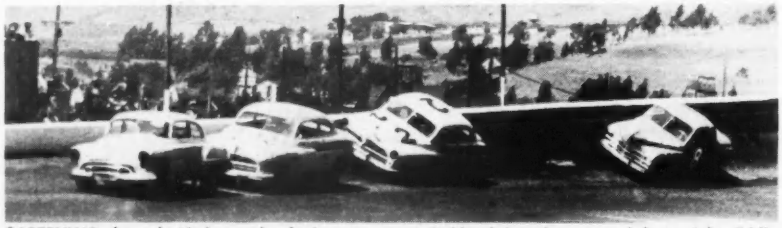
★ ★ ★

HOT RODS and sports cars did compete at Cal-Neva's most recent road run, held on a roughly circular dirt course at Salt Point Ranch, property of a Cal-Neva member. Best time over a mile of curving, undulating ground was made by Fred Smith of Oakland, in his '24 T V-8 at 1:33.03. Among the 17 competing cars was the sweetly running MG TD of H. Player, also of Oakland. His time was 1:50.11, which indicates that even where top speeds are low and roadability is the determining factor, hot rods can turn in a creditable performance.



SECOND place in Vanderbilt Cup Race in Santa Monica went to Don Colee on 1915 Hudson

WHILE BIG STOCK cars like the Lincoln do not too well on the shorter tracks, given wind-up room they roll. Notable win for this make was made by Myron Fohr in the AAA National Championship 150-mile stock car race at Milwaukee this summer. A crowd of 34,000 watched home-town boy Fohr tool his '49 Lincoln over the one-mile distance at an average speed of 65.6 mph. The next four places were taken by '50 Olds, and a '49 Cad came in sixth. . . . Big names, including eight Indianapolis drivers, filled the field at one of the Coast's biggest events of the year: the 250-lap Stock Car Race at ⅝-mile Oakland Speedway. Marvin Burke piloted his '50 Merc to victory at an average of 77 mph, won on skill and pit stops, two closely related factors. Walt Faulkner, Indianapolis lap-record holder, came in second in his '50 Plymouth. Big wheel Hershel McGriff set a record qualifying lap, held the lead almost to the 100th lap, at which point tire-itis set in: McGriff's pace was relentless and the Olds' tires blew three times. Even so, he came in eighth. Nine of the 20 starters finished, in this order: Mercury, Plymouth, Olds 88, Plymouth, Ford 8, Plymouth, Olds 88, Ford 8, '49 Lincoln. The race pulled all-time record crowds, an all-time record purse: Burke took home a tidy $2543. . . . Growing trend in stock car and jalopy racing is the "Powder Puff Derby," slugfests for lady lead-foots only.



CAREENING through 60-degree banked east turn at Oakland Speedway are, left to right, Eddie Bennett (Oldsmobile), Marvin Burke (Merc), Walt Faulkner (Merc) and Johnny Smith (Plymouth)

★ ★ ★

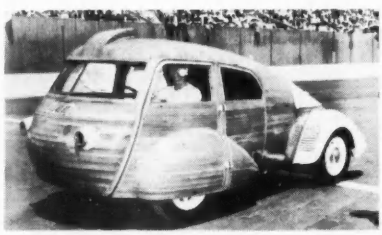
IN A REVIVAL of the Vanderbilt Cup Races of old, a 1914 Model T Ford, driven by Louis Mahoney succeeded in defeating the best cars of the day at an exceptional 45 mph average. The race was a climax to the Diamond Jubilee Festival in Santa Monica, California, and was held on part of a pre-World War I road race circuit. (See MOTOR TREND, October, 1949.) Ten cars went to the post, with seven finishing. In second place was Don Colee, driving a 1915 Hudson, while third went to Lindley Bothwell in a 1913 Peugeot. Mahoney took over the lead early in the race after passing the 1907 Prince Henry Benz and although he made two pit stops, maintained the lead to the end. Viva la Tin Lizzie!

★ ★ ★

NEWEST sport to be presented to the American race fans is Moto Polo. This fascinating game is a combination of soccer, football and polo. Played with cars that consist of nothing more than chassis, engine and reinforced steel hoops and on a regulation size football field, the object of the game is to push the "ball" (5 feet in diameter and 200 lbs.) across the opposing team's goal line. Net result is many crack-ups and rolling-over, to the delight of the fans.

★ ★ ★

DRAG RACES, over a standing start ¼-mile, were the order of the day on July 9th, when the So. Calif. Region of the SCCA played host to five other sports car clubs



"HORSE TRADER ED'S" Whatsit (Chrysler-powered) took couple turns at track prior to Oakland race. Body is almost all wood and the interior upholstery is leopard skin trimmed

at El Segundo. Altogether, over 100 timed runs were made, with the fastest time of the day, irrespective of category, being made by Roy Richtor, on his supercharged Allard J-2. His time of :14.79 seconds is an average of over 60 mph for this distance. The next event planned by this active region of the SCCA is a speed hill climb in September.

G. B.

ACCESSORY TRIALS

The Overdrive Selector

IF YOU have a car with overdrive, you should be more than casually interested in a new development recently introduced by the Specialty Man. Called "Overdrive Selector," the unit consists of a control knob on the gearshift and necessary wiring for attachment to the overdrive switch.

The purpose of the unit is to provide you with an instantly responsive control over overdrive and to give you a quick selection of six gears. It has two positions: rotated forward it's in overdrive, rotated aft it's in conventional. (The normal overdrive dash control is always left ON.)

After testing on a 1950 Ford for several days, MOTOR TREND found that the advantages of Overdrive Selector (O.S.) are manifold. It provides for faster acceleration through the use of more gears, gear changing without using the clutch, hill-holding ability, and more fuel economy through the use of overdrive in traffic.

For faster acceleration, you first rotate the O.S. forward, wind up in low overdrive, shift to second and at the same time flick the O.S. forward, let up on the throttle momentarily allowing a gear change into second overdrive, then reapply throttle pressure. Then shift into third (either conventional or overdrive), using the same method, if desired.

Hill-holding is provided any time the O.S. is forward. On a hill, as the car begins to roll backward and the driveshaft rotates 1/6-turn, the overdrive pawl catches and prevents the car from rolling any further. Because of this system, it is not necessary to use the emergency brake, the brake foot pedal, or to slip the clutch.

The advantage of using overdrive in traffic is in fuel economy. Unlike normal use of overdrive in traffic, engine compression is always available with the O.S., thereby saving the brakes. In operating the car with O.S. and the selector in conventional, the car is free-wheeling if the foot is off the throttle.

The disadvantage to O.S., if it can be construed as such, is that a somewhat new technique in driving must be learned. First of all, you have to remember that the gears are higher (overdrive second is almost the same as conventional third). You can't lug the car in high around corners, but instead of shifting, you can flick the switch with your thumb, changing gears to conventional third.

Also, at intersections where you might automatically shift into second, at the same time that you do rotate the O.S. into conventional second to prevent lugging. Another thing that may sometimes cause confusion is that you cannot back up or get the car into reverse when the O.S. is in overdrive.

The advantages of the O.S. by far outweigh any disadvantages and for anyone who deems the overdrive a necessity, this unit will not be a bad investment.

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Low	11.558	8.091
Second	6.576	4.603
High	4.10	2.870
Reverse	14.84	——

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(See Page Five)

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by A. Devereux

TRANSATLANTIC NEWSLETTER

GENERAL: The American car is not entirely the despised blister-box many Europeans *and* Americans would have the world believe. The performance of certain U.S. "family cars" closely approaches that of fine overseas *sport* cars! Recent blows to the automotive chauvinists were the Le Mans Race and the Pan-American Road Race, the latter won, of course, by an Oldsmobile 88. The performance figures of this car, the new Cadillac, and others were widely published in Europe, have the motoring public there showing renewed respect for the Yankee product . . . California foreign car owners note: The Dept. of Motor Vehicles has repeatedly called attention to the fact that lighting equipment on most foreign cars does not comply with California laws (and other states', too). A Calif. Highway Patrol official reports that the crack-down is coming: dealers and drivers will be held responsible for the illegal equipment.

ENGLAND: With traditional restraint, Rolls-Royce has announced the successor to the noble Phantom line: the P-IV. So far only one model exists, this made to the order of Princess Elizabeth and the Duke of Edinburgh. There is, of course, little incentive for

ABARTH "Monza" coupe is low and luscious, uses the 1100 cc Cisitalia engine, tuned to varying degrees. Hottest form is good for 114 mph

the makers to produce the gigantic machines for today's market that they were famous for in less austere days, but the P-IV is, nevertheless, a giant: 145-in. wheelbase, 346 cu. in. engine, and coachwork 6-ft. 2-in. high! The eight-cylinder, F-head, nine-main-bearing engine is the result of long research and development. One of these engines has been powering an experimental Bentley in England, is already legendary for its dazzling performance. But performance data aren't being revealed and Rolls-Royce is taking no further P-IV orders for the present . . . In 1900 automotive historian St. John Nixon drove a Wolseley from one end of England to the other, from John O'Groats to Land's End. This year, a half-century later, the original driver decided to repeat the performance with the same machine, successfully chugged over the 1136 miles in twelve leisurely days. The 51-year-old car was absolutely stock, and the feat, in the words of the veteran driver, "is almost unique in the annals of 'veteran carism.'" . . . At last the mighty Jeep has found a successor, in Britain, at least. The new military vehicle is larger, uses a larger engine, has independent suspension all around. Reason for the new design: need for better cross-country performance . . . For model car collectors: England has a well-illustrated, well-written monthly magazine devoted to novice and expert model car building of all varieties. Address on request . . . Ad in a recent *The Motor* (London): "Monstrous great 40-50 Delage, of the Vintage year 1926, with varnished mahogany open sports shooting brake body. Reason for sale, car's thirst incompatible with owner's."

SWITZERLAND: Chrysler's huge new plant at Schinznach-Bad has been under construction for two years, is nearing completion. Chrysler, Plymouth, and Standard Vanguard cars will be produced there. The latter car is, incidentally, now available with optional overdrive.

RUSSIA: Getting a driver's license here is a complicated project involving medical examination, memorization of a tricky highway code, a test of mechanical knowledge. If you pass you get a license which includes three tear-out stamps; one is removed each time you violate the law and three strikes put you out of the driver's seat. City police are very active in enforcing the rather intelligent ruling that cars be kept as clean and good-looking as possible. Strange custom: opening the door while driving is the signal for a turn; left door means left turn, right door, right turn.

MEXICO: The automotive scene here is really complex and confusing: Renaults are being assembled in the U.S. Hudson plant, General Motors is arranging to assemble the German Opel, a deal is brewing for the assembly of Hillman Minx at the Packard factory, the British Ford is to be assembled by Big Ford Dealer Ramon Llano, and Italian Fiat and Czech Skoda cars are also dickering for a part in the act.

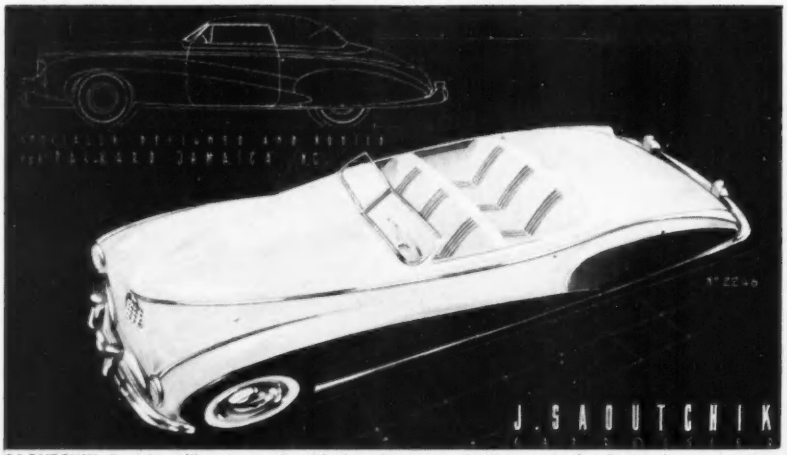
ITALY: It's understandable that the press here regards Italian participation in the Mexican Road Race to have proven something of a moral victory for European entrants. There were 126 starters, only six overseas jobs. Two of these were 2500 cc Alfa Romeos, and they placed fourth and eighth behind cars of vast-

SUPERLEGGERA Aerlux ⅔ seater coupe built by Touring of Milan is standard on 1950 3rd Series Alfa-Romeo. Roof has transparent sliding panel

ly greater displacement. European racing enthusiasts, sensitive to subtle shadings of engine efficiency (for example, the fastest Alfa consumed about 33 per cent the amount of fuel that the winning Olds used), hope that future installments of the Pan-American race will be judged on a class, as well as a general basis . . . The nation's main auto concern, Fiat, is studying plans for partial assembly of their cars in far-off Australia. One of the main difficulties, according to Count Camorana, Fiat V.P., is the skilled labor shortage in the commonwealth.

INDIA: The Indian government has announced that they will continue to import knocked-down cars and trucks until the end of 1952, hoping by that time maybe GM and Ford will build plants here.

(Continued on page thirty-one)



SAOUTCHIK, Parisian, likes to work with American cars. Design made for Packard Jamaica, Inc.

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MG TD BADGE BAR

Designed as a companion piece to the new ARNO-LITE driving lamp, this badge bar's simplicity of design is in the best European tradition. It is mounted between the dumb irons on the front of the MG TD, and provides a sturdy mounting place for badges, lamps, horns, and other accessories. Finished in polished chromium plate.

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Good news for all British Car owners in the Midwestern area! S. H. Arnolt, Inc. is now the official retailer for the world famous Joseph Lucas and Co., and is stocking a complete line of parts, and offering quality service on all Lucas equipment, including warranty service on Lucas batteries.

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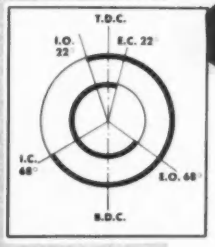

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Fiberglas

(*Continued from page twenty-one*)

length, are sucked onto a metal screen, shaped slightly smaller than the desired product but otherwise an accurate duplicate. A vacuum pump, operating through the screen, supplies the power. This method eliminates the hand-labor involved in tailoring the cloth and provides a single permanent mold which may be used as many times as desired without showing wear. Raw material cost is lowered because the cut glass fibers are much cheaper than woven cloth.

Body panels made from cut glass fibers would not have the strength now obtained from cloth reinforcement. This may be unimportant in the automobile of the future, however, since frames can be designed to assume all normal stresses and some new method of insulating passengers against collision-shock will probably be devised.

The Convair Car is an example of some of the major advantages of Fiberglas-plastic construction. Since it was to be flown from place to place, it had to be light. With its Crosley engine, it weighed about 800 pounds. Because passengers were to ride in the car while in the air, the under-shell of the car had to be covered to keep out wind. An entire lower section was designed in a single piece, eliminating much assembly work and reducing the number of joints in the final product (see photo). One major top section, the hood, and two doors completed the car. Five sections in all, three of them light enough to be easily lifted by one man, and the Convair Car body was ready to roll.

Another selling point for Fiberglas-plastics is the ease of repair. Industrial Plastics Company in Gardena delivered Howard Darrin's experimental car and repaired it the same day when a fender was smashed. Confronted with a major body repair, the technicians in the plant came up with a method simple enough to be used by the average driver in his own garage. By matching cut parts together, the original shape of the fender was retained, since the material does not bend like steel or other metals. The cuts were filled with a mixture of resin and glass fibers and heat was applied to cure the mixture. When it had hardened, the surface was sanded and repainted. The cost of repair was $27, requiring 2½ hours' labor.

Symbolic of the entire industry today is the fact that a lot of talented men are working with new materials of great potential use. Ideas and inventions are flowing free and fast. Each company clamps a lid of secrecy on any new process it stumbles on. None of them is big enough to support full-scale research that might lead to mass-production techniques. At the present, little is being done by plastics manufacturers to prepare for an invasion of the automobile-body market. An occasional enterprising Kurtis or Darrin will provide a shot in the arm by giving some money and time and much valuable publicity, but work can only begin in earnest when research appropriations are measured in the millions.

Most of the big help is coming from outside the industry. Wonder Bread has let a big contract for bread trays; a washing-machine company has developed a machine made almost entirely of Fiberglas-plastic. The Detroit automobile manufacturers are experimenting with the Preforming process. Whoever is finally responsible for the invention that brings reinforced plastics into direct competition with metals will reap the fattest profits since the early days of mass-production. If you've got a workshop lying idle, you might take a crack at it yourself.

by H. Wieand Bowman

NOTE: The following is a continuation of last month's discussion of the importance of insurance to you as an individual.—Editor.

ACTUALLY, the most troublesome situation that arises in the legal field concerning auto injuries is that with respect to an injured guest or guests in a car.

In general, there are three variations of what can occur, depending on the state in which the accident occurs.

Some states (a minority) rule that it is unjust to permit a non-paying guest passenger to recover from the host car-owner for ordinary acts of negligence on the part of the owner-driver. In these states, gross negligence must be proved. What constitutes gross negligence has not been consistent but it is safe to assume that a driver will be ruled grossly negligent if he is half drunk at the wheel of a car, drives at high speed on a wet highway or on the wrong side of the road.

Naturally, in the case of insured-owner claims of guests suing the host this is most likely to be guest-host collusion against the defendant insurance company. The results of these cases are reflected in higher insurance rates. However, there are numerous cases of seemingly ordinary appearing hitch-hikers who solicit rides with the express purpose of manufacturing personal injury claims against their host.

In other states a second interpretation is given to the guest rider cases. These states permit guests to recover if ordinary negligence is proved. The guest is placed in the same legal status if injured in an accident as would be the stranger occupying the non-offending car involved in an accident. The majority of our states make this decision.

New Jersey represents the third type of rule regarding injured guest riders. The state divides guests into two groups, invited guests and self-invited guests. The invited guest, such as neighbors, close friends or relatives, may recover from the owner if he can prove ordinary negligence. The self-invited guests, as the hitch-hiker, must prove gross negligence before recovery. New Jersey also prohibits recovery for personal injuries in an auto liability case by a husband against wife or vice versa or by a minor against parents.

Thirty-seven states, plus the District of Columbia and Hawaii, have passed laws to prevent persons of proved recklessness and financial irresponsibility from continuing to drive. These differ from the Massachussets compulsory insurance and in general require: (1) that persons convicted of reckless driving, hit-and-run, or drunken operation of a vehicle, lose their rights to drive until they have furnished evidence of financial responsibility and (2) that persons with judgments against them for auto accidents cannot drive or register a vehicle until they satisfy judgments. Variations of the financial and safety responsibility laws are many. Actually, while they are better than no law at all concerning this problem, the laws are of the "let

(Continued on page thirty-three)

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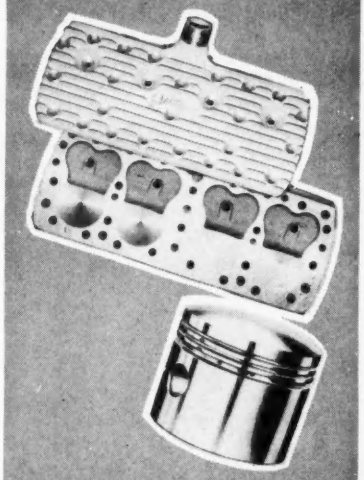

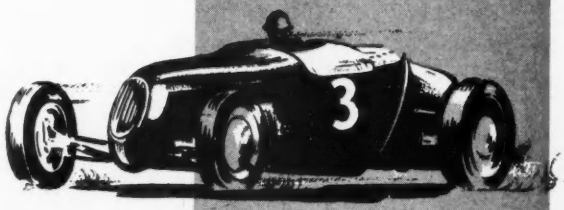

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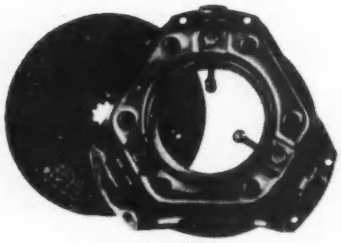

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Kaiser Motor Trials

(Continued from page eleven)

except that like most cars today it would be practically impossible to wear a hat when sitting behind the steering wheel.

Steering the Kaiser into sharp turns at high speeds is not too difficult, except that there is a certain amount of mushiness, and the body leans quite badly. The car, however, has good control through a steering gear system with a ratio of 18.2:1.

The asbestos clutch in the Kaiser is fairly soft, and in combination with the helical gears of the transmission does not lend itself to speed shifting. For normal driving, however, there is no problem in shifting. If the engine is raced in gear, it is necessary to allow the engine rpm to reduce before the shift is made.

The ride of the Kaiser is satisfactory; however, it is not as smooth as one would expect from the appearance of the car. The Kaiser is not a heavy car and the road bumps are transmitted to the driver and passengers. Over dips at high speeds, the front end appeared to bottom as did the rear seat.

For the dynamometer test of the '51 Kaiser, we took the car to the Clayton Manufacturing Company in El Monte, California. There we found the road hp figures shown in the Table of Performance. Maximum road hp was found at 500 rpm less than the rpm for maximum bhp. The percentage drop from the maximum bhp of the bare engine through the transmission and drive line was approximately 45 per cent. This road hp figure takes into consideration normal losses through the transmission, differential, and the rolling resistance of the tires to the road. It is, therefore, lower than the bhp rating of the engine, which is measured at the flywheel and is the maximum power an engine in perfect condition will develop at maximum speed.

In the acceleration tests, it was found that the Kaiser we tested appeared to operate better at medium temperatures. If the engine was allowed to heat up, performance dropped off quite rapidly. The Kaiser tested was equipped with standard transmission and overdrive, giving it a rear axle gear ratio of 4.55:1. Tires used were 6.70 x 15 with a normal inflation pressure of 24 pounds. It was found in these tests that a faster shift could be made without using overdrive; in other words, shifting through first, second and third gears and bypassing second overdrive. The difference in these two methods is shown in the Table of Performance.

In the top speed run, the fastest time was made using overdrive, although there was not too much difference between the highest speed attainable in this manner and in using conventional third. The difference in transmission ratios is .7:1 in overdrive as versus 1:1 in third.

Fuel consumption of the '51 Kaiser is something the Kaiser-Frazer Corporation can definitely be proud of, for the over-all average obtained throughout the entire test was 19.7 mpg. (This did not include the high speed and acceleration tests, however.) The use of overdrive at speeds above 30 mph greatly added to the fuel economy obtainable, as can be witnessed by the figures shown in the Table of Performance.

The brakes on the Kaiser are most satisfactory, for they are positive and sure-stopping. The pedal on the car tested was set up somewhat hard, but did not require excess pressure.

Mechanical Features

Unlike previous models in the Kaiser-Frazer line, the '51 Kaiser is entirely new—from the 'X' frame up. Chassis suspension is by means of coil springs at the front and semi-elliptics at the rear. Direct-acting Monroe shock absorbers are used at all four wheels. A torsional stabilizer is used at the front only.

Twelve body types are available in the '51 Kaiser line: Special and De Luxe four-door sedans, two-door sedans, club coupes, business coupes, and two- and four-door Traveler utility sedans. The body design is, as Kaiser-Frazer designers state, "unmistakably Continental." Although the body has been designed to take advantage of the car's inherent good looks, the construction is not quite what some motorists would approve of.

The wide chrome trim panel, which extends the length of the car is not only decorative, but useful in preventing the doors from being damaged in parking lots. However, if it was made of heavier gauge metal its practical value would be enhanced. As it is, it is too easily dented.

The trunk compartment has sufficient volume (18.7 cu. ft.) for most purposes, but will receive the complaints of some who require a deeper compartment. The shaping of the 17-gal. fuel tank in the form of a kidney to allow the spare tire to be recessed under the floor is, in itself, a good idea. In the event of a flat tire on a trip, however, where the compartment would probably be loaded with luggage, it would be necessary to unload most of this luggage before it would be possible to remove the tire.

The general appearance of the instrument panel and crash pad is good, with the instruments being visible at a glance. An improvement of this crash pad, which consists of vinyl covering over metal, could be made by having a more resilient padding. The chrome trim around the windshield is not too practical, as it is quite annoying in the sunlight.

Upholstering in the '51 seems durable, and is probably used on the premise that the majority of new car buyers immediately equip their cars with seat covers. The padded rug has a luxurious appearance, but dirties quite easily. A rubber mat would be more suitable. Appointments are not what one would expect from a car in this price bracket ($2079 list at factory).

Location of all engine components is quite handy, making them all readily accessible. From our over-all examination, only one improvement could be suggested: relocation of the air cleaner to the rear side of the carburetor, which would permit easier servicing of the latter.

The powerplant for the '51 Kaiser is basically the same as that used in previous Kaiser and Frazer models, being a six-cyl., 'L' head engine of 226.2 cu. ins., with a bore and stroke of $3\frac{5}{16}$ by $4\frac{3}{8}$ inches. Bhp has been increased to 115 @ 3650 rpm, with a compression ratio of 7.3:1, and using 80 octane fuel.

Summation

The Kaiser-Frazer Corporation will assuredly sell more Kaisers this coming year than ever before in their brief history. They indeed have a smart-appearing product in the '51 Kaiser. And, along with its looks, other attributes that will help sell this product to a car-hungry public are its fuel economy, acceleration and good brakes. Although the car may be slightly over-priced according to some standards, by others it is not. Much of this depends on the individual—in the medium-priced field, it is hard to beat the Kaiser for looks; in some phases of performance, it has to be content with second place.

TABLE OF PERFORMANCE

DYNAMOMETER TEST

1200 rpm (full load) 22 mph	30 road hp
2000 rpm (full load) 36.5 mph	49.5 road hp
3150 rpm (full load) 58 mph	62 road hp (max)

ACCELERATION TRIALS

Standing Start ¼-Mile	:20.99 (conv.) :21.33*
0-30 mph through gears	:05.46 (lo only)
0-60 mph through gears	:17.97 (conv.) :18.52*
10-60 mph in high	:19.78
30-60 mph in high	:12.78

* Shift low to second, to second overdrive and high

TOP SPEED

Fastest one-way run	84.11 mph
Average of four runs	83.57 mph

BRAKE CHECK

Stopping distance at 30 mph	37 ft. 11 ins.
Stopping distance at 60 mph	176 ft. 6 ins.

FUEL CONSUMPTION

At a steady 30 mph	24.15 mpg (conv.); 25.35 mpg (O.D.)
At a steady 45 mph	20.48 mpg (conv.); 25.84 mpg (O.D.)
At a steady 60 mph	20.41 mpg (O.D.)
Through light traffic	18.16 mpg
Through medium traffic	15.66 mpg
Through heavy traffic	12.77 mpg

HILL CLIMBING

7 per cent grade	3rd gear reqd., 57 mph
25.6 per cent grade	Low gear reqd., 23 mph
32 per cent grade	Low gear reqd., 21 mph

SPEEDOMETER CHECK

At 30 mph indicated 33 mph	(10% error)
At 45 mph indicated 49 mph	(9.1% error)
AT 60 mph indicated 65 mph	(8.3% error)

GENERAL SPECIFICATIONS

ENGINE

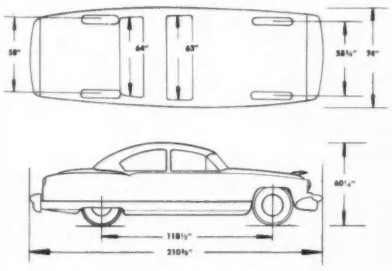
Type	'L' head, in-line 6
Bore and Stroke	3 5/16 x 4 3/8
Stroke/Bore Ratio	1.32:1
Cubic Inch Displacement	226.2
Maximum Bhp	115 @ 3650 rpm
Bhp/Cu. In.	.508
Maximum Torque	190 ft.-lbs. @ 1800 rpm
Compression Ratio	7.3:1

DRIVE SYSTEM

Transmission—Conventional three-speed Ratios—Low—2.57:1, Second—1.55:1, Third—1:1, Overdrive—.7:1, Reverse—3.49:1
Hydra-Matic Ratios—First—3.82:1, Second—2.63:1, Third—1.45:1, Fourth—1:1, Reverse—4.31:1

Rear Axle Ratio	Standard—3.91:1
	*Overdrive—4.55:1
	†Hydra-Matic—3.54:1

DIMENSIONS



Turning Radius	18 feet
Steering (lock to lock)	5 turns
Weight	3380 lbs.
Weight/Hp Ratio	29.4:1
Weight Distribution (Front/Rear)	53.8/46.2%
Center of Gravity	22.7 ins.
Road Clearance	7 ins.

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It's Transportation . . .

(Continued from page fourteen)

truth, that the manufacturer of today feels that it is no longer necessary to present to his potential market a complete breakdown of what he has to offer in the way of performance figures, mechanical specs, mileage factors, etc. These facts are available only to the persistent automobile lover, who will take the time and trouble to seek them out. This type of buyer is rapidly becoming a determining factor in the make-up of advertising copy. In the next few years you can look for more of the manufacturers supplying these data to their consumer public. This trend is being spearheaded by a number of periodicals, including MOTOR TREND, generally available to all. Detroit will be supersensitive to the reaction these publications obtain from their readers—the nucleus of the manufacturers' billion dollar market.

Unfortunately, most of the sports car enthusiasts feel that anything imported from overseas has all the qualities and functionalism that the Detroit product lacks. In this, they are guilty of ignoring the obvious. If we assume that all automobiles are actually designed to be basically transportation, then in fairness we must discover what determined the complete design.

It becomes a ridiculously simple observation. The foreign vehicle is small, both in overall size and engine displacement, because of the high cost of fuel, and because the roads were built for carts and bicycles and not for automobiles. Foreign cars had to be designed to meet inflexible, already existing conditions, whereas, our roads and petroleum industry were built to fit our concept of the automobile.

You have also often heard that the foreign product is unquestionably superior in workmanship and overall quality. This is true when comparing virtually handbuilt items with the average mass-production products marketed in this country. But never forget that we have had our greats also. Witness the Lincoln, the Duesenberg, Stutz, Pierce Arrow, etc. However, we still find it practical to produce for all, even if it is necessary to sacrifice some quality and individuality. Any man with unlimited finances can still get just what he wants in an automobile. But let's face it, men, that doesn't mean you and me. The sports car owners say we're "stuck" with the Detroit models. Well, we're pretty well off, if you consider it!

A little earlier we talked about the auto being nothing more than just transportation. And that's what it was designed for, because that's all most of us wanted. But if *you* want to make it more, you certainly can, and here's where we can learn a lesson from our own sports car and hot rod clubs. There are abandoned flight strips, roads, and large, seasonally unused fields all over the country. Any group of young men who want to get together and stage some family style competition amongst themselves can certainly do so, with very little trouble or strain.

"But who can afford an Allard, Jaguar or MG?" Forget it! Set up a stock Ford-Chevrolet class, a Buick-Pontiac-DeSoto class, a Cadillac-Lincoln-Chrysler class and have yourselves some fun! You don't have to race against each other; merely go at it against time and artificial obstacles, and let superior driving skill tell the tale. What'll happen to the crate? Don't worry about *it*—it was designed to take a terrible beating. And you'll discover what the rugged sportsters still have to learn—your piece of production machinery parked in the garage is all the

automobile, and more, than its creators ever figured you'd need.

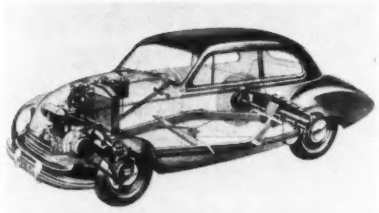
The foreign sports car wasn't designed for Americans. We built for our own needs and desires, on a practical basis. . . . Why take something that doesn't fit our set-up?

I'll take what Detroit offers, or get a horse. What about you?

Tendance Continentale

(Continued from page twenty-four)

CAR OF THE MONTH: The first postwar D.K.W. cars began rolling from Auto Union Western Zone assembly lines in late July.



PHANTOM view of the new DKW "Masterclass" Sedan shows ingenious utilization of entire wheelbase area. Transversely mounted, two-stroke, vertical twin engine drives front wheels

Although the new models are based on their very popular prewar ancestors, many ingenious changes have been made. One of the most impressive of these is the placing of the engine well ahead of the front axle, with the result that over 10 inches are knocked from the wheelbase without any sacrifice of body space. The engine itself is a 688 cc (42 cu. in.) two-stroke vertical twin, mounted transversely across the frame, with drive to the front wheels achieved through a chain-driven three-speed gearbox. Prewar tubular "backbone" frame has given way to a much more rigid and conventional frame with box-section side members. I.f.s. is by a transverse spring and wishbones, rear suspension retains the old transverse spring-dead axle combination. For the present cars will be built for the home market only, the sedan to sell for $1450.

SPORT: A new era of speed as it was in the fast, furious years of '34-'39 seems to have at last arrived. The G.P. d'Europe at Silverstone was the curtain-raiser, gave some hint of the power of the Type 158 Alfa Romeo. Their design was, of course, laid down before the war as an Italian answer to German rule of the sport, and now the cars are beginning to show their mettle and their speed. The Belgian G.P. at Spa saw all records shattered and more than five minutes knocked off the '37 Mercedes (Lang) lap record. This was due not entirely to improvements in machines: the twisty, rolling 8.76 mile course has been completely resurfaced and widened, and one of the slowest turns has been transformed into a fast, sweeping curve. On the straightaway Fagioli was clocked in his new Alfa at 183.5 mph! Lang's old lap record was 109.2 but both Farina and Fangio lapped at 114.03 in their 158 Alfas. Winners were Fangio and Fagioli, and Louis Rosier pushed his steady-running, 4.5-litre unblown Talbot into third money . . . The Algiers-to-Capetown Rally, hinted at several months ago in this column, will take place, exact date still unannounced. It will be the most ambitious event of its sort in history, will cover about 9,200 miles of every conceivable type of road and wilderness. Entries will be limited to 80, with cars up to seven tons being allowed.

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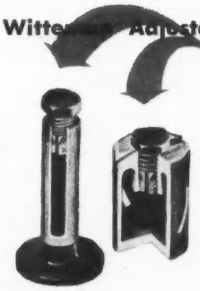

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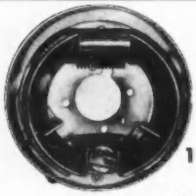

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Automatic Transmissions

(Continued from page sixteen)

Hydra-Matic units for these cars are similar in design and operation but mechanical details may vary slightly to adapt them to the different engines. The Hydra-Matic transmission is composed of a hydraulic coupling and planetary transmission (see drawing). Three planetary gearsets provide four hydraulically shifted forward speed ratios and one manually selected reverse speed. To reduce the tendency of the car to creep with the engine idling and the selector in DRIVE position, the transmission is so designed that engine torque must pass through the front planetary gearset before it reaches the hydraulic coupling. All normal forward driving is done in HIGH range with the three speed ratios shifted automatically according to throttle position. In LOW range, used for heavy pulling, fast acceleration, or engine braking, only the first two speeds (LOW and SECOND) may operate. The selector may be moved alternately from LOW to REVERSE to rock the car when stuck in mud or snow. The engine cannot be started unless the selector is in NEUTRAL.

Chevrolet Powerglide

The Chevrolet Powerglide is a combination of hydraulic torque converter and planetary transmission. The description and operating details are similar to those for the Buick Dynaflow, the only variations being in manufacturing details and the addition of an auxiliary hydraulic coupling built into the Chevrolet torque converter. This auxiliary coupling is not designed to operate during periods of acceleration or cruising. However, it does function when the car is decelerating, allowing the engine to be used as a brake. This additional feature also enables the engine to be started quite easily by pushing the car while in gear.

Chrysler, DeSoto, Dodge

Chrysler, DeSoto, and Dodge automobiles are available with automatic transmissions known as Prestomatic, Tip Toe Shift, and Gyromatic, respectively. Despite the different names, the transmissions are identical in design and operation. These units are a combination of conventional fluid coupling, conventional friction clutch, and hydraulically shifted constant mesh transmission (see drawing). Controls in the driver's compartment are conventional, consisting of a steering column selector lever and clutch pedal.

The constant mesh transmission provides four forward speeds and a reverse. With the selector in LOW, the car starts in low gear and, at speeds above six mph, may be shifted to second gear by momentarily releasing the accelerator. With the selector in HIGH all starting is done in third gear and, at speeds above 12 mph, releasing the accelerator allows the transmission to shift to fourth gear. Shifting back to the lower gears in the respective ranges can be done by pressing the accelerator to the floor and is automatically accomplished when car speed drops to six mph in low or 12 mph in high. The clutch must be released by depressing the clutch pedal when gear changes are made by moving the selector lever. Engines in cars equipped with transmissions of this type may be started by pushing the car, with the selector in LOW and the clutch released, until a speed of 10 to 15 mph and then engaging the clutch.

Ford and Mercury Transmission

Official confirmation has been given to the rumors that next year's Ford and Mercury automobiles will be available with Borg-Warner automatic transmissions as optional equipment. These transmissions consist of a hydraulic torque converter and planetary transmission, providing three forward speeds and a reverse (see drawing). The hydraulic converter operates at all speeds and acts as a hydraulic coupling when torque conversion is not necessary. In normal driving range the car starts in second gear and automatically shifts to high gear at speeds between 15 and 60 mph. The speed at which the shift occurs depends on the throttle position. Shifting from high to second for added acceleration is accomplished by pressing the accelerator to the floor. LOW range is provided for heavy pulling and engine braking on mountain roads or long grades. The transmission provides a positive mechanical lock for parking.

Hudson Drive-Master and Super-Matic

Automatic transmissions supplied as optional equipment in Hudson automobiles are available in two forms. "Hudson Drive-Master" is a combination of cork friction clutch and vacuum shifted, constant mesh transmission (see drawing). "Super-Matic" is composed of the Drive-Master unit plus an automatic overdrive. Controls consist of a standard steering column gearshift lever and clutch pedal. Two pushbutton switches on the instrument panel are used to place the Drive-Master in or out of operation.

Cars equipped with Super-Matic have, in addition to the two switches, a cable control, also mounted on the instrument panel, to engage or disengage the overdrive. The pressure plate housing and flywheel form a sealed compartment for the clutch assembly. To provide smooth clutch engagement, a small amount (⅛ pint) of special oil is kept in the clutch housing at all times. The transmissions are conventional constant mesh and sliding gear units and provide three forward speeds and one reverse.

Packard Ultramatic Drive

The Packard Ultramatic Drive is a combination of cork friction clutch, conventional hydraulic torque converter, and planetary transmission (see drawing). Clutch engagement is hydraulically actuated and controlled by throttle opening and driveshaft speed. Two forward speed ranges (direct and low) and one reverse are provided by the planetary transmission.

When accelerating from rest in HIGH range, in which all normal driving is done, the planetary gears are inoperative and engine torque is multiplied only by the hydraulic converter. This condition exists until a correct combination of throttle opening and driveshaft speed (between 15 and 55 mph) causes the clutch to engage. When the clutch is engaged the hydraulic converter is inoperative and drive is direct from the crankshaft to the driveshaft. Shifting from direct to converter drive at speeds under 55 mph is accomplished by pressing the accelerator to the floor. In LOW range the planetary gearset provides additional torque multiplication for fast acceleration, hill climbing, or engine braking. Torque multiplication is provided in reverse by both the hydraulic converter and planetary gearset. In PARK position the driveshaft is locked to the transmission case to prevent movement of the car. NEUTRAL is used when it is necessary to run the engine above idle speed without moving the car. The engine can be started only in PARK or NEUTRAL.

Studebaker

The automatic transmission available as optional equipment for Studebaker passenger cars is a combination of cork friction clutch, conventional hydraulic torque converter, and

planetary transmission (see drawing). Two forward speed ranges and a reverse are provided by the planetary transmission. There is no clutch pedal in the car. In DRIVE position, where most driving is done, the unit provides two automatically shifted forward speeds. Starting is done in the lower gear (second gear) with additional torque multiplication provided by the hydraulic converter. The friction clutch is hydraulically engaged for third speed, rendering the hydraulic converter and planetary gears inoperative, when driveshaft speed and throttle opening are in the correct combination. The driver can shift from third to second gear, at speeds below 50 mph, by pressing the accelerator to the floor. In LOW (used for fast acceleration, hill climbing, and engine braking), torque is transmitted by the hydraulic converter and a planetary gearset. To prevent creeping, with the engine idling and the transmission in gear, Studebaker rear brakes are equipped with an electric solenoid valve which retains pressure in the lines after the brakes have been applied. Pressure on the accelerator pedal releases the brakes. In direct gear the transmission locks on upgrades to prevent backward movement. In PARK position the driveshaft is locked to the transmission case. The engine cannot be started unless the selector is in PARK or NEUTRAL.

Advantages and Disadvantages

Automatic transmissions are precision instruments and should be treated as such. Manufacturers' recommendations regarding periodic inspection, adjusting, and oil changing should be faithfully adhered to for peak performance with a minimum of expense.

Due to their precision construction, the first cost of automatic transmissions is somewhat higher than that of conventional units. Also, repair charges, in the event of mechanical failure, can be quite high.

For the prospective purchaser, the advantages of automatic transmissions, viz. freedom from clutch operation and elimination of a large percentage of shift lever manipulation, should be balanced against higher first cost, higher normal upkeep expense, noisy operation of some types as mileage increases, increased gasoline consumption with most types, and the lack of positive control over the various gear ratios while driving.

Motor Whys

(Continued from page twenty-seven)

every dog have one bite before he's condemned" type of thing.

Here, again, there is an inconsistency between states. Some states do not make their safety responsibility laws operative until the driver involved in an auto accident has been found negligent and a judgment has been entered against him. In these states the negligent person is prohibited from driving until his judgment has been satisfied.

In other states, particularly Maine, New Hampshire and New York, the law goes into effect as soon as the accident has occurred, provided it results in an amount of personal or property damage usually placed at $25 to $50 or more. The driver is then prohibited from further operation of a car until he proves to state officials that he is financially responsible.

Our state statutes generally show a trend of the lawmakers to make more motorists pay for damages caused by their negligence.

The obvious protection from becoming unpleasantly tangled up with variety and lack of consistency of these state laws is to have adequate liability insurance. What adequate liability insurance actually is in 1950 will be covered in the next issue of MOTOR TREND.

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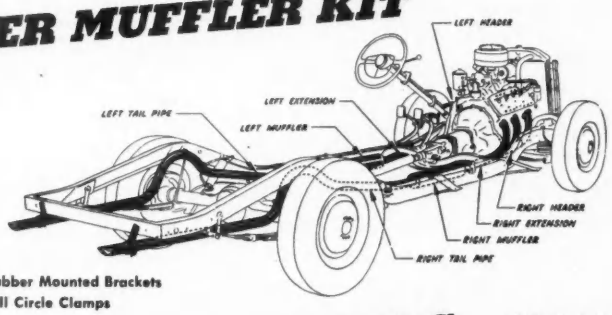

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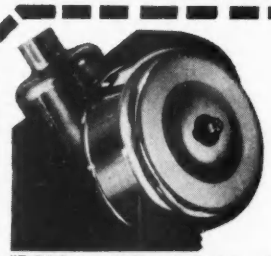

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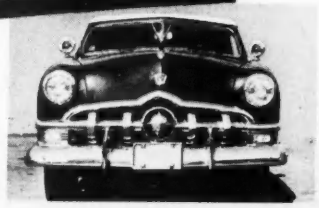

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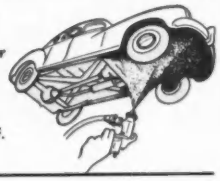

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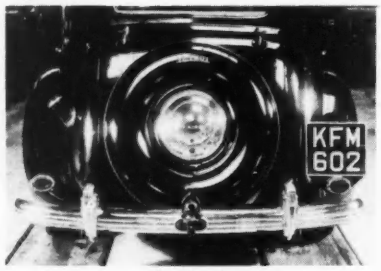
TRADE TOPICS

THE SUBJECT OF GAS TURBINE PROPULSION FOR GROUND VEHICLES was the subject of one of the sessions at the National West Coast Meeting of the Society of Automotive Engineers in August. The speaker was W. M. Brown of Kenworth Motor Truck Corp., who described the progress in development of gas turbines. Conclusions drawn were that "there is a place for the turbine in highway freight hauling; that the turbine engine is not yet proven; that it has not yet reached its maximum in performance and development"; and "that it is not yet available," however, "the cost will not be prohibitive."

★ ★ ★

LOW-COST TRAILER HITCHES FOR MOST POPULAR MAKES OF BRITISH CARS have been developed by Dixon-Bate, well-known English truck engineering firm. These pre-fabricated brackets are carefully designed so as to be almost invisible when installed. (See installation on Ford V-8 Pilot.) U.S. dealers interested in handling the line are invited to contact the manufacturer: B. Dixon-Bate, Ltd., Chester, England.



★ ★ ★

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FEATURING MINNESOTA MINING AND MANUFACTURING COMPANY'S NEW RUBBERIZED "UNDERSEAL" is Miller's of Los Angeles. The ingenuity that gave the world "Scotch Tape" was applied to the problem of developing a permanently adhesive, resilient undercoating. Need was felt for an undercoating that would protect thin metal surfaces of fenders and the body of the modern automobile against abrasive particles, flying rocks and rust. Minnesota Mining and Manufacturing Company's answer was "Underseal," which not only provides the desired protection, but also complete sound proofing and insulation.

★ ★ ★

IF YOU HAVE AN OLDSMOBILE THAT IS GIVING YOU DETONATION TROUBLE because of carbon deposits, the next time you take it in to your dealer he may remove the carbon with rice. A new development of the Oldsmobile Division, known as the "Head-On" Carbon Blaster, provides a quick and inexpensive way of removing carbon deposits from combustion chambers without taking off the cylinder head. The nozzle is inserted into the spark plug opening and the rice is forced through at 40-60 lbs. pressure, chipping off the carbon deposits.

★ ★ ★

ONCE AGAIN, THE SCINTILLA "VERTEX" MAGNETO IS AVAILABLE TO MOTORISTS in limited supply. Joe Hunt, of Los Angeles, Calif., has been appointed as exclusive distributor in the 11 western states for this Swiss-produced, single-unit, precision ignition system. Advantages claimed for the "Vertex" over standard ignition systems include: easier starting, increased hp, greater fuel economy and added ignition dependability through elimination of the battery and coil.

★ ★ ★

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SOUND OFF!

NOTE: In the August issue of MOTOR TREND we editorialized on the fact that we believe that the average person is not entirely satisfied with his postwar car. As if in justification of this viewpoint, we have received many letters setting forth our readers' dislikes about their new cars and how they think they can be improved. As promised, we are publishing these letters in an effort to acquaint the automotive manufacturers with your complaints.—Editor.

All the new cars are too low, too wide and too long. With a hundred pounds or so in the trunk and two people in the rear seat, all four (postwar) cars I've had literally dragged the road. . . . I have difficulty getting out of my driveway onto the street. . . . The garage . . . is now too small. . . . On camping and hunting trips I have to stay on the main roads for fear I'll get stuck on account of not enough road clearance.

H. Floyd Hughes
South Gate, Calif.

★ ★ ★

Here are the gripes about my new car—a 1949 Plymouth: (1) Excessive oil consumption, (2) poor gasoline mileage, (3) hard starting, (4) no pick-up, (5) gears grate if rapid shifting is attempted, (6) body leaks, (7) unusual number of squeaks and rattles, (8) front end will not stay in alignment for any length of time, (9) engine cannot be made to idle smoothly at slow speeds, (10) very poor riding qualities.

William Anthony
Baltimore, Maryland

★ ★ ★

I think the rear end styling of the new Nash Statesman and Ambassador can be improved. . . . The location of the tail lights doesn't provide for the width of the car. Why doesn't Nash style a rear deck after that of the Rambler for their bigger cars that will provide plenty of trunk space?

Howard Wolf
Orangeville, Illinois

★ ★ ★

Recently, my folks purchased a 1950 Chrysler Windsor four-door sedan . . . first of all, what about these super-cushion tires? Do you think the low tire mileage . . . (is) worth all the publicity? The major thing wrong, however, is the engine and transmission. . . . I don't think there's a new car that can't walk away from it. . . . When a buyer buys a $3000 automobile, he wants some kind of performance and gas mileage.

Gene Babow
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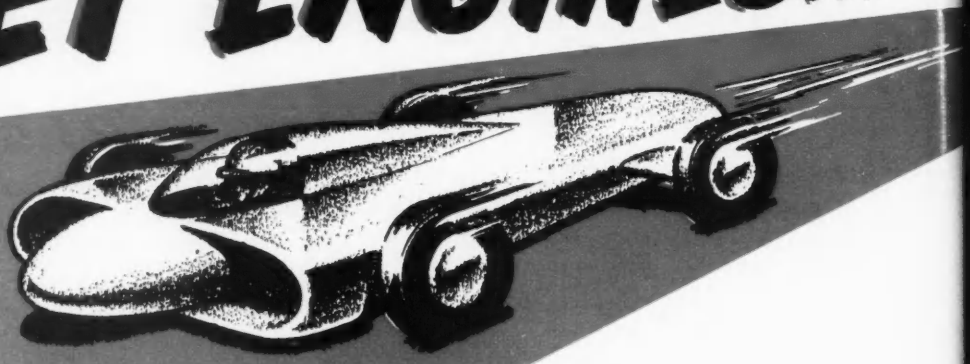

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